

**2000**

**YEAR BOOK  
AUSTRALIA**

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**2000**

**YEAR BOOK**  
**AUSTRALIA**

W. McLennan  
Australian Statistician

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Photograph: Homebush Stadium (courtesy of Julian Andrews, Sun Herald).

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# Preface

*Year Book Australia* is the principal reference work produced by Australian Bureau of Statistics (ABS). It provides a comprehensive statistical overview of various aspects of the economy and social conditions in Australia, together with their administrative and legislative background. In addition, it contains descriptive matter dealing with Australia's government, international relations, defence, geography and climate.

The first Official Year Book of the Commonwealth was published in 1908, although individual Australian States and colonies had been producing year books for several decades previously.

The statistics contained in this edition are the most recent available at the time of its preparation. More detailed and, in many cases, more recent statistics are available in the publications of the ABS and other organisations. The sources of information are shown throughout and at the end of chapters of the *Year Book*, while the *ABS Catalogue of Publications and Products* (1101.0) lists all current publications of the ABS.

ABS publications draw extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated. Particular thanks and appreciation are extended to those organisations which have kindly supplied material for inclusion in this 2000 edition of *Year Book Australia*.

The year 1999 marked the passing of two men, Keith Archer and Jack O'Neill, who were great statisticians and leaders of the Commonwealth Bureau of Census and Statistics (forerunner of the ABS). An article about them is included after the Introduction to this edition of *Year Book Australia*.

Australian Bureau of Statistics  
Canberra  
January 2000

W. McLennan  
Australian Statistician





# Introduction

**Y**ear Book Australia provides a comprehensive overview of the economic and social conditions of contemporary Australia. It is a statistically oriented publication with sufficient background information to establish a context for the statistics and to assist in understanding and interpreting them.

Many of the statistics are derived from the ABS, the official statistical agency which produces the Year Book. However, a great deal of the information is also contributed by other, predominantly government, organisations. The official nature of the contributors to the Year Book ensures a high degree of objectivity and reliability in the picture presented of contemporary Australia.

The Year Book also presents some historical and international perspectives on Australia.

This current (82nd) edition is the latest in a long series of Year Books extending back to the first edition in 1908. This series provides a valuable source of information on the state of Australia at any particular point in this period.

*Year Book Australia 2000* is also available on CD-ROM. Its contents are included in Australia Now—A Statistical Profile on the ABS Internet site at <http://www.abs.gov.au>

## Finding information

The contents pages at the beginning of the Year Book and preceding each chapter provide a guide to the broad subjects contained in each chapter. The index assists in locating information on more specific subjects. A list of Special Articles which have appeared in previous editions is contained at the end of the Year Book. A collection of Special Articles is included in Australia Now—A Statistical Profile on the ABS Internet site.

The tables and graphs in a chapter are numbered and the text is cross-referenced, as necessary, to the table or graph to which it relates.

## Further information

While the statistics and descriptive information contained in the Year Book provide a

comprehensive overview of Australia, they represent only a relatively small part of the statistics and other information available. The Year Book is aimed primarily at providing a ready and convenient source of reference, to those both familiar and unfamiliar with a particular subject. In other words, because of the range of subjects, and limitations on the size of the Year Book, it aims at breadth rather than depth of information.

For those requiring information in greater depth, the Year Book also serves as a directory to more detailed sources, with the source shown for each statistical table, graph and map. Where the ABS is the source, the title and catalogue number of the relevant publication are quoted. For other sources, the name of the organisation is shown, and the publication title where appropriate. Relevant ABS and other publications are also listed at the end of each chapter. A useful complementary publication is the *ABS Catalogue of Publications and Products* (1101.0) which lists all current publications and products of the ABS.

Year Books or Statistical Summaries produced by the ABS for States and Territories provide information similar to that contained in Year Book Australia, for the State or Territory concerned.

In many cases, the ABS can also provide information which is not published or which is compiled from a variety of published and unpublished sources. Information of this kind may be obtained through the Information Consultancy Service. Charges are generally made for such information. Inquiries may be made by contacting the Inquiries area of the nearest ABS office (see page 762).

The annual reports of government departments and agencies also provide a valuable source of more detailed information on subjects covered in the Year Book.

For a variety of reasons, it is not possible for all statistics in the Year Book to relate to the latest or the same year. Readers wishing to obtain or clarify the latest available statistics should contact the relevant source.

## Comments from readers

The ABS endeavours to keep the balance of the contents of the Year Book in line with the ever-changing nature of the nation. For this reason comments on the adequacy and balance of the contents of the Year Book are welcomed and should be directed to the attention of the Editor of the Year Book, Australian Bureau of Statistics, PO Box 10, Belconnen ACT 2616.

## Symbols and abbreviations

The following symbols, where shown in columns of figures or elsewhere in tables, mean:

n.a.	not available
n.y.a	not yet available
—	nil or rounded to zero
..	not applicable
n.p.	not available for separate publication (but included in totals where applicable)
p	preliminary—figures or series subject to revision
r	figures or series revised since previous issue
n.e.i.	not elsewhere included
n.e.c.	not elsewhere classified
n.e.s.	not elsewhere specified
—	break in continuity of series (where drawn across a column between two consecutive figures)
*	subject to high standard errors and should be used with caution
**	subject to sampling variability too high for practical purposes (i.e. relative standard error greater than 50%)
\$m	\$ million
\$b	\$ billion (thousand million)

The following abbreviations are used for the titles of the Australian States and Territories and Australia:

NSW	New South Wales
Vic.	Victoria
Qld	Queensland
WA	Western Australia
SA	South Australia
Tas.	Tasmania
NT	Northern Territory
ACT	Australian Capital Territory
Aust.	Australia

Yearly periods shown, for example, as 1998, refer to the year ended 31 December 1998; those shown, for example, as 1998–99, refer to the year ended 30 June 1999. Other yearly periods are specifically indicated. The range of years shown in the table headings, for example, 1901 to 1998–99, indicates the period covered, but does not necessarily imply that each intervening year is included or that the yearly period has remained the same throughout the series.

Values are shown in Australian dollars (\$) or cents (c) unless another currency is specified.

Where figures have been rounded, discrepancies may occur between sums of the component items and totals.

# Two great Commonwealth Statisticians

## Introduction

The year 1999 marked the passing of two men, Keith Archer and Jack O'Neill, close friends and professional colleagues who had served in and later led the Commonwealth Bureau of Census and Statistics (forerunner of the Australian Bureau of Statistics) with great distinction, and shaped it into a modern national statistical office.

During the 1960s Archer and O'Neill were a formidable team, and it was during this period that the Bureau first earned its international reputation as one of the best statistical offices in the world. Archer was a natural leader, but many of the developments during this period (outlined below) would not have happened without O'Neill's strong support and his skills, in administration and organisation, to carry them through. O'Neill showed his own flair for leadership when he became Commonwealth Statistician after Archer's retirement.

## Keith Archer

Keith McRae Archer, Commonwealth Statistician from 1962 to 1970, died in Canberra on 1 April 1999. He was 93.

Archer was born in Launceston, Tasmania on 19 October 1905. Following the death of his father when Archer was only three, he was brought up by relations at Kimberley, Tasmania. After receiving his primary school education at the local school, Archer was awarded a scholarship to attend Launceston Grammar School. He successfully completed his secondary school studies and pursued his sporting interests, particularly in cricket and tennis.

On completion of his secondary schooling, in 1923 Archer started work in the Tasmanian Statist's Office, and part-time study at the University of Tasmania, where he completed a Diploma of Commerce. Shortly after Archer joined the Tasmanian Statist's Office, it became part of the Commonwealth Bureau of Census and Statistics as part of an integration arrangement

between the Commonwealth and Tasmanian Governments. It was to be another 30 years before the other States agreed to similar arrangements. Tasmania was at the leading edge of statistical development in Australia and, as a consequence, was the 'home State' for a number of Commonwealth Statisticians.

After 10 years on a range of statistical work in Tasmania, Archer transferred to Canberra in 1933, on what he thought would be a short term basis, to participate in processing of the Population Census. He never returned to Tasmania to live, although he was a frequent visitor to his home State.

After working in a range of increasingly more senior positions, Archer was appointed Commonwealth Statistician in 1962 following the retirement of Sir Stanley Carver, a position he held until his retirement in 1970 because of ill health.

Under Archer's leadership, a number of important initiatives were launched which together transformed the Bureau into a modern national statistics organisation. Of these initiatives, four stand out.

## Introduction of computing

In 1963 the Bureau acquired the first major electronic computer installation in the Commonwealth bureaucracy, and one of the first in Australia. Archer fought hard for this, having seen the potential for electronic data processing through his long involvement (and some frustration) with punch card processing. The introduction of electronic computers led to incredible increases in productivity in statistical work. Archer's early influence was an important factor in the ABS continuing to be regarded as having one of the best information technology installations in Australia.

## Integration of economic statistics

Archer gave strategic direction to the integration of official economic statistics. The statistics collections from businesses had been designed and managed as independent operations, without much effort to ensure consistency in data item definitions and classifications across the collections, and to avoid gaps and overlaps in

their scope and coverage. Archer's leadership culminated in the conduct of the Bureau's first integrated economic censuses of businesses, in respect of 1968–69, covering a significant part of the Australian market economy. The ABS's economic statistics collections continue to be closely integrated, providing high quality source data for the Australian national accounts as well as many other users of economic statistics. Thanks to Archer's vision and leadership, the extent of integration of Australian official economic statistics is much greater than in most other developed countries.

### **International recognition of the Australian statistical service**

Under Archer's leadership, the Australian statistical service received increasing international recognition, and Australia began its significant influence on international statistical activities, including the development of international statistical standards and classifications—an influence it continues to exert to this day. Key events in Archer's time as Commonwealth Statistician were the election of Australia to the United Nations Statistical Commission and Archer's appointment as chair in 1968, also the year of Archer's appointment as chair of the Conference of Asian Statisticians'. Australia hosted the 36th Session of the International Statistical Institute in Sydney in 1967; Archer chaired the organising committee for this important conference.

### **Statistics cadetship scheme**

Archer's fourth major initiative, and perhaps his most important contribution to public administration in Australia, was the establishment of the statistics cadetship scheme. The scheme was established to attract highly competent young people to complete their university studies, at Bureau expense, prior to starting work with the Bureau. The scheme ensured a flow of highly qualified graduates into the Bureau, particularly in the 1960s and 1970s. Over time, many of these people were promoted both within the ABS and to senior positions in other agencies. A significant number rose to become departmental heads and deputy secretaries.

The cadetship scheme's impact on effective public administration has been profound and will remain a lasting legacy of Keith Archer's vision. The scheme was complemented by Archer's strong encouragement of Bureau staff to undertake tertiary studies to enhance their careers and the professionalism of the Bureau.

A stroke on Christmas Day 1969 cut short Archer's time as Commonwealth Statistician and led to his retirement in the following year. His service to Australia in statistics and public administration was recognised by an OBE in 1965 and a CBE in 1971. In 1969, he was made a Fellow of the Royal Statistical Society and in 1971 a Fellow of the Australian Computer Society.

Through hard work and determination Archer was able to recover much of his health. This led to his second career as Executive Director of the Australian Association of Permanent Building Societies. He represented Australia at the World Conference of International Building Societies in Rio de Janeiro in 1974 and San Francisco in 1979. On retirement from this position in 1979, he became Honorary Secretary of ACT Association of Permanent Building Societies.

Archer was a remarkable personality who left his stamp on the Commonwealth Bureau of the Census and Statistics, and its successor, the Australian Bureau of Statistics. He had enormous warmth and feeling for people, with a capacity to inspire great enthusiasm among Bureau staff for his initiatives. He had a great talent for remembering names and faces, and took a real interest in the activities of the families of staff members, even after retirement.

Archer 'managed by walking around' long before this became a management catchcry. Two or three times a year he would set out to visit every Bureau staff member at their workplace. These surprise visits often caught staff unaware, but the word soon spread that Archer was on one of his visits, which may have introduced some bias into his sample observations of the industriousness of Bureau staff.

### **Jack O'Neill**

Jack O'Neill, Commonwealth Statistician from 1972 to 1975, died in Canberra on 11 October 1998 following a long illness. He was 88.

O'Neill was born in Wynyard, Tasmania in 1910. He received his primary education at Wynyard State School and then boarded at St Virgil's College in Hobart for his secondary years. A fine student, he was also an outstanding athlete, tennis player, cricketer and footballer. Later he combined with Keith Archer to represent the University of Tasmania in inter-varsity tennis competitions. This was to be the beginning of a partnership that would last for many years in their working environment.

In 1927 O'Neill started work as a clerk in the then Commonwealth Bureau of Census and Statistics in Hobart. He also started part-time university studies in the Faculty of Commerce at the University of Tasmania, but ill-health prevented him from completing them, and put a temporary hold on his working career—he did not work for four and a half years while recuperating from his illness.

In 1937 O'Neill resumed his work with the Bureau, but in Canberra when Sir Roland Wilson was the Commonwealth Statistician. Although his whole working life was with the Bureau, O'Neill spent periods during the war years outposted as a statistical officer with the Bureau of Meteorology in Melbourne and the Food Control Unit of the Department of Commerce and Agriculture.

O'Neill worked in various statistical areas of the Commonwealth Bureau of Census and Statistics, and quickly rose to become Deputy Commonwealth Statistician. Keith Archer was then the Commonwealth Statistician.

Given his own considerable leadership qualities, it was natural that O'Neill should succeed Archer as Commonwealth Statistician following his retirement.

O'Neill inspired awe as well as affection from Bureau staff. Highly individualistic and somewhat larger than life, he was far from the stereotype of a public servant of his time. He showed great courage and determination in pursuing his career despite several setbacks because of illness. He could appear intimidating, particularly when waving his walking stick to reinforce a point, but he was also known for the kindness under his no-nonsense manner, and he had a sharp sense of humour. He was particularly supportive of young staff, and guided and regularly monitored their progress.

### **Legal structures for an official statistical agency**

O'Neill had a fine instinct and judgement on management and statistical issues. He had an instinctive feel for the quality and credibility of

the numbers underlying official statistics. He also had great political sense, and judgement about the most appropriate legal structures for an official statistical agency. This was of enormous value in one of his final roles as Commonwealth Statistician—oversighting the development of the *Australian Bureau of Statistics Act 1975*, to give effect to one of the key findings of the Committee on the Integration of Data Systems (the so-called Crisp Committee). This Act led to the creation of the ABS, and has become a model for the legislation underpinning many other official statistical agencies, most recently that of the Republic of South Africa.

### **Implementing the statistics cadetship scheme**

As mentioned earlier, a key initiative in the development of the Bureau as a modern official statistical agency was the recruitment of young graduates and the encouragement of existing staff to pursue tertiary studies. O'Neill gave strong support to Archer to ensure the success of this innovative approach to securing and building the leaders of the future. Without O'Neill's superb administrative skills the statistics cadetship scheme would not have been such a success in developing a generation of leaders for the Bureau and the Public Service as a whole.

### **Support for research and development**

O'Neill also gave strong support for research and development into new statistical methods, despite the opposition of those suspicious of new techniques. Seasonal adjustment of economic data may seem second nature now to users of time series, but in the 1960s there was widespread resistance, inside and outside the Bureau, to the introduction of these methods. O'Neill's determination, and instinctive support for methodological work, was the key factor behind the introduction of seasonal adjustment techniques in Australian official statistics. Earlier, he had been a great supporter of the introduction of sampling methods into the ABS, now a standard tool of trade of official statisticians, but not so in the 1950s.



# 1

# Geography and climate

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## Introduction

Geography is the science of the earth's form, its physical features, climate and population, and how they relate to each other. The first part of this chapter describes Australia's land forms and topographic features and how they were formed. The second part describes the island continent's wide range of climatic conditions. The third part discusses water resources, a major factor in land form and climate which impacts on many aspects of life in Australia.

## Geography of Australia

### Position and area

Australia comprises a land area of about 7,692,030 square kilometres (see table 1.1). The land lies

between latitudes 10°41' South (Cape York) and 43°39' South (South East Cape, Tasmania) and between longitudes 113°09' East (Steep Point, Western Australia) and 153°39' East (Cape Byron, New South Wales). The most southerly point on the mainland is South Point (Wilson's Promontory) 39°08' South. The latitudinal distance between Cape York and South Point is about 3,180 kilometres, while the latitudinal distance between Cape York and South East Cape, Tasmania, is 3,680 kms. The longitudinal distance between Steep Point and Cape Byron is about 4,000 kms.

The area of Australia is almost as great as that of the United States of America (excluding Alaska), about 50% greater than Europe (excluding the former USSR) and 32 times greater than the United Kingdom. Tables 1.2 and 1.3 show the area of Australia in relation to areas of other continents and selected countries.

**1.1 AREA, COASTLINE, TROPICAL AND TEMPERATE ZONES, AND STANDARD TIMES**

State/Territory	Estimated area		Length of coastline(a)	% of total area		Standard times	
	Total	Total area		Tropical zone	Temperate zone	Meridian selected	Ahead of GMT(b)
	km <sup>2</sup>	%	km				hours
New South Wales	800 640	10.41	2 140	..	100	150°E	10.0
Victoria	227 420	2.96	2 510	..	100	150°E	10.0
Queensland(c)	1 730 650	22.5	13 350	54	46	150°E	10.0
South Australia	983 480	12.79	5 070	..	100	142°30' E	9.5
Western Australia	2 529 880	32.89	20 780	37	63	120°E	8.0
Tasmania	68 400	.89	4 880	..	100	150°E	10.0
Northern Territory	1 349 130	17.54	10 950	81	19	142°30' E	9.5
Australian Capital Territory	2 360	.03	..	..	100	150°E	10.0
Jervis Bay Territory	70	..	60	..	100	150°E	10.0
<b>Australia</b>	<b>7 692 030</b>	<b>100.00</b>	<b>59 740</b>	<b>39</b>	<b>61</b>	<b>..</b>	<b>..</b>

(a) Includes islands. (b) Greenwich Mean Time. During daylight saving periods, an hour should be added to the times in this column. (c) Queensland does not have daylight saving.

Source: Bureau of Meteorology and AUSLIG.

1.2 AREAS OF CONTINENTS

	Area
	'000 km <sup>2</sup>
Continents	
Asia	44 614
Africa	30 319
North, Central America and West Indies	24 247
South America	17 834
Europe	10 600
Australia and Oceania	8 504
<b>Total land mass (excluding Antarctic continent)</b>	<b>135 774</b>

Source: *Encyclopaedia Britannica; World Book Encyclopedia.*

1.3 AREAS OF SELECTED COUNTRIES

	Area
	'000 km <sup>2</sup>
COUNTRIES (SEVEN LARGEST)	
Russia	17 075
Canada	9 976
China	9 596
United States of America	9 629
Brazil	8 511
Australia	7 692
India	3 287
SELECTED OTHER COUNTRIES	
Belorus	208
France	547
Germany	357
Indonesia	1 919
Japan	377
Kazakhstan	2 717
Papua New Guinea	462
New Zealand	269
Ukraine	604
United Kingdom	244

Source: *Encyclopaedia Britannica; World Book Encyclopedia; AUSLIG.*

Landforms and their history

Australia is the lowest, flattest and, apart from Antarctica, the driest of the continents. Unlike Europe and North America, where some landscapes date back to 'only' 20,000 years ago, when great ice sheets retreated, the age of landforms in Australia is generally measured in many millions of years. This fact gives Australia a very distinctive physical geography. Map 1.4 shows the elevation of the Australian continent.

The continent can be divided into three parts:

- the Western Plateau;
- the Central Lowlands; and
- the Eastern Highlands.

The Western Plateau consists of very old rocks (some over 3,000 million years old), and much of it has existed as a landmass for over 500 million years. Several parts have individual plateau names (e.g. Kimberley, Hammersley, Arnhem Land, Yilgarn). In the Perth area, younger rocks along a coastal strip are separated from the rest by the Darling Fault escarpment. The Nullabor Plain is virtually an uplifted sea floor, a limestone plain of Miocene age (about 25 million years).

The Central Lowlands stretch from the Gulf of Carpentaria through the Great Artesian Basin to the Murray–Darling Plains. The Great Artesian Basin is filled with sedimentary rocks which hold water that enters in the wetter Eastern Highlands.

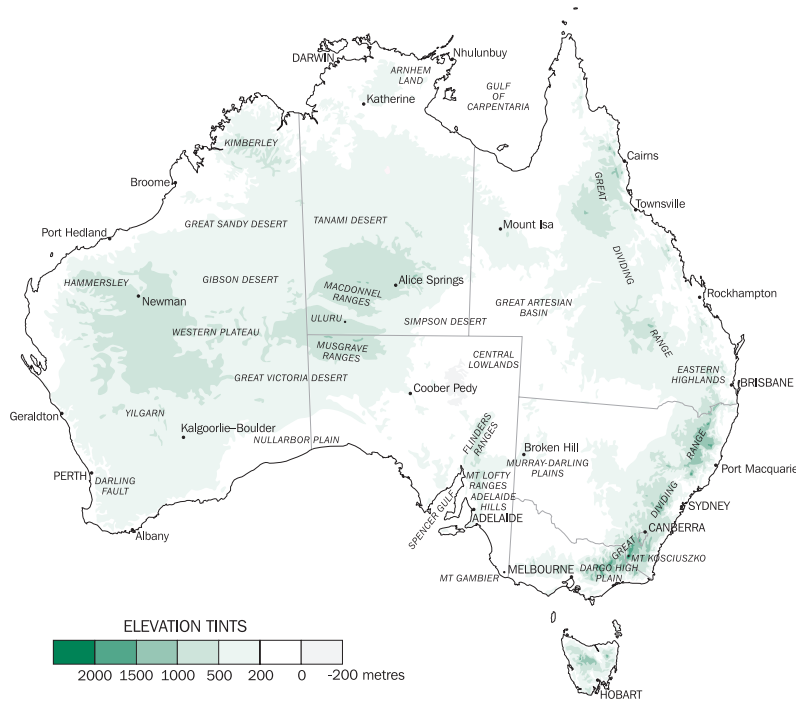
Much of the centre of Australia is flat, but there are numerous ranges (e.g. Macdonnells, Musgrave) and some individual mountains of which Uluru (Ayers Rock) is probably the best known. Faulting and folding in this area took place long ago. The area was worn to a plain, the plain uplifted and then eroded to form the modern ranges on today's plain. In looking at Uluru, one remarkable thing is not so much how it got there, but that so much has been eroded from all around to leave it there.

In the South Australian part of the Central Lowlands, fault movements are more recent, and the area can be considered as a number of blocks that have been moved up and down to form a series of ranges (Mt Lofty, Flinders Ranges) and hills (such as the Adelaide Hills), with the down faulted blocks occupied by sea (e.g. Spencer Gulf) or lowlands including the lower Murray Plains.

The Eastern Highlands rise gently from central Australia towards a series of high plateaus, and even the highest part around Mt Kosciuszko (2,228 metres) is part of a plateau.

There are a few younger faults and folds, such as the Lake George Fault near Canberra, and the Lapstone Monocline near Sydney.

## 1.4 AUSTRALIA, Elevation



Source: AUSLIG 1996.

Some plateaus in the Eastern Highlands are dissected by erosion into rugged hills, and the eastern edges of plateaus tend to form high escarpments. Many of these are united to form a Great Escarpment that runs from northern Queensland to the Victorian border. Australia's highest waterfalls (Wollombi on the Macleay, Wallaman Falls on a tributary of the Herbert, Barron Falls near Cairns, and Wentworth Falls in the Blue Mountains) all occur where rivers flow over the Great Escarpment. For most of its length the Great Dividing Range (separating rivers flowing to Central Australia from rivers flowing to the Pacific) runs across remarkably flat country. In eastern Victoria, however, the old plateau has been eroded into separate High Plains (such as Dargo High Plain).

The present topography results from a long landscape history which can be started in the Permian, about 290 million years ago, when much of Australia was glaciated by a huge ice cap. After the ice melted, parts of the continent subsided and were covered with sediment to form

sedimentary basins such as the Great Artesian Basin. By early Cretaceous times, about 140 million years ago, Australia was already so flat and low that a major rise in sea level divided it into three landmasses as the shallow Cretaceous sea spread over the land.

In the following Tertiary times, Australia can be regarded as a landscape of broad swells varied by a number of sedimentary basins (Murray, Gippsland, Eucla, Carpentaria, Lake Eyre and other basins). These slowly filled up and some are now sources of coal or oil. The Eastern Highlands were uplifted about this time.

Throughout the Tertiary, volcanoes erupted in eastern Australia. Some individual volcanoes were the size of modern Vesuvius, and huge lava plains covered large areas. Volcanic activity continued up to a few thousand years ago in Victoria and Queensland. Australia's youngest volcano is Mt Gambier in South Australia, about 6,000 years old.

Between 55 and 10 million years ago, Australia drifted across the surface of the earth as a plate, moving north from a position once adjacent to Antarctica. There have been many changes in the climate of Australia in the past, but oddly these do not seem to be due to changing latitude (associated with global scale plate movements). Even when Australia was close to the South Pole, the climate was relatively warm and wet, and this persisted for a long time despite changes in latitude. It was probably under this climate that the deep weathered, iron-rich profiles that characterise much of Australia were formed. Aridity only seems to have set in after Australia reached its present latitude, and the northern part was probably never arid.

Today a large part of Australia is arid or semi-arid. Sand dunes are mostly longitudinal and are aligned with dominant wind directions associated with the regular passage of high pressure cells (anticyclones). These 'highs' rotate anticlockwise and track at about 28°S in winter and 38°S in summer, resulting in predominantly south-east to easterly flows in the north and north-west to westerly flows in the south. Looking down from above, the south-east Trade Winds or 'Trades' would be those winds in the top right hand quarter of a hypothetical, stationary 'high' centred on the Australian continent.

The dunes are mostly fixed now. Stony deserts or gibber plains (covered with small stones or 'gibbers') are areas without a sand cover and occupy a larger area than the dune fields. Salt lakes occur in many low positions, in places following lines of ancient drainage. They are often associated with lunettes, dunes formed on the downwind side of lakes. Many important finds of Aboriginal prehistory have been made in lunettes. Despite the prevalence of arid conditions today, real aridity seems to be geologically young, with no dunes or salt lakes older than a million years.

The past few million years were notable for the Quaternary ice age. There were many glacial and interglacial periods (over 20) during this time, the last glacial period occurring about 20,000 years ago. In Tasmania, there is evidence of three different glaciations: the last glaciation, one sometime in the Quaternary, and one in the Tertiary. On the mainland, there is evidence of only the last glaciation, and the ice then covered only 25 square kilometres, in the vicinity of Mt Kosciuszko.

The broad shape of Australia has been influenced over long periods by earth movements associated with large tectonic processes. However, much of the detail has been carved by river erosion.

A significant number of Australia's rivers, like the Diamantina River, drain inland. While they may be eroding their valleys near their highland sources, their lower courses are filling up with alluvium, and the rivers often end in salt lakes which are dry for most of the time. Other rivers reach the sea, and have dissected a broad near-coast region into plateaus, hills and valleys. Many of the features of the drainage pattern of Australia have a very long history, and some individual valleys have maintained their position for hundreds of millions of years. The salt lakes of the Yilgarn Plateau in Western Australia are the remnants of a drainage pattern that was active before continental drift separated Australia from Antarctica.

During the last ice age, sea level was more than 100 metres lower than it is today; the current outer reef area of the Great Barrier Reef would have been the coast at that time. The rivers tended to cut down to the lower level, especially towards the sea. When the sea level rose again, some of the lower valleys were drowned, making fine harbours—like Sydney Harbour—while others tended to fill with alluvium as the sea rose—making the typical lowland valleys around the Australian coast.

Coastal geomorphology is also largely the result of the accumulation of sediment in drowned coasts. In some areas, such as Ninety Mile Beach (Victoria) or the Coorong (South Australia), there are beaches made simply from this accumulation. In much of the east there is a characteristic alternation of rocky headland and long beach, backed by plains filled with river and marine sediments.

The offshore shape of Australia, revealed in isobath contours, results mainly from the pattern of break-up of the super-continent of which Australia was once a part. In some areas, such as the Great Australian Bight, there is a broad continental shelf bounded by a steeper continental slope. In other areas, like south-east New South Wales around Merimbula and much of the Tasmanian coastline, the continental shelf is very narrow, sometimes coming to within 20 nautical miles of the coast. The Queensland coast is bounded by a broad plateau on which the Great Barrier Reef has grown in only the last two million years. In South Australia, the continental shelf is grooved by submarine canyons.

The Australian landforms of today are thus seen to result from long continued processes in a unique setting, giving rise to typical Australian landscapes, which in turn provide the physical basis for the distribution and nature of biological and human activity in Australia.

## Rivers and lakes

As can be inferred from the elevation and relief map (map 1.4), the rivers of Australia may be divided into two major classes: those of the coastal margins with moderate rates of fall, and those of the central plains with very slight fall. Of the rivers of the east coast, the longest in Queensland are the Burdekin and the Fitzroy, while the Hunter is the longest coastal river of New South Wales. The longest river system in Australia is the Murray–Darling which drains part of Queensland, the major part of New South Wales and a large part of Victoria, finally flowing into the arm of the sea known as Lake Alexandrina, on the eastern side of the South Australian coast. The length of the Murray is about 2,520 kms, and the Darling and Upper Darling together are also just over 2,000 kms long. The rivers of the north-west coast of Australia, for example the Murchison, Gascoyne, Ashburton, Fortescue, De Grey, Fitzroy, Drysdale and Ord, are of considerable length. So also are those rivers in the Northern Territory, for example the Victoria and Daly, and those on the Queensland side of the Gulf of Carpentaria, such as the Gregory, Leichhardt, Cloncurry, Gilbert and Mitchell. The rivers of Tasmania have short and rapid courses, as might be expected from the configuration of the land.

There are many types of lake in Australia, the largest being drainage sumps from the internal rivers. In dry seasons, these lakes finally become beds of salt and dry mud. The largest are Lake Eyre 9,500 square kilometres, Lake Torrens 5,900 square kilometres and Lake Gairdner 4,300 square kilometres.

Other lake types are glacial, most common in Tasmania; volcanic crater lakes, predominantly in Victoria and Queensland; fault angle lakes, of which Lake George near Canberra is a good example; and coastal lakes formed by marine damming of valleys.

## Climate of Australia

The island continent of Australia features a wide range of climatic zones, from the tropical regions of the north, through the arid expanses of the interior, to the temperate regions of the south.

Widely known as ‘The Dry Continent’, the land mass is relatively arid, with 80% having a median rainfall less than 600 mm per year and 50% less than 300 mm (the average is 450 mm). Seasonal fluctuations can be large, with temperatures ranging from above 50°C to well below zero.

However, extreme minimum temperatures are not as low as those recorded in other continents, probably because of the absence of extensive mountain masses to induce orographic cooling (which is in the order of  $-0.6^{\circ}\text{C}/100\text{ m}$  increase in elevation) and because of the large expanse of relatively warm surrounding oceans.

Although the climate can be described as predominantly continental, the insular nature of the land mass produces modifications to the general continental pattern.

Australia experiences many of nature’s more extreme phenomena, particularly droughts, floods, tropical cyclones, severe storms and bushfires.

## Climatic controls

The generally low relief of Australia is evident in the elevation and relief map (map 1.4). Compared to other continents, Australia causes little obstruction to the atmospheric systems which control the climate. A notable exception is the eastern uplands which modify the atmospheric flow, sometimes causing the ‘Easterly Dip’ which is evident in some surface pressure charts.

In the winter half of the year (May–October) anticyclones, or high pressure systems, pass from west to east across the continent and may remain almost stationary over the interior for several days. These anticyclones may be 4,000 kms wide and, in the Southern hemisphere, rotate anticlockwise. Northern Australia is thus influenced by mild, dry south-east winds, and southern Australia experiences cool, moist westerly winds. The westerlies, and the frontal systems associated with extensive depressions (lows, sometimes called extra-tropical cyclones) travelling over the Southern Ocean, have a controlling influence on the climate of southern Australia during the winter season, causing rainy periods. Periodic north-west cloud bands in the upper levels of the atmosphere over the continent may interact with southern systems to produce rainfall episodes, particularly over eastern areas. Cold outbreaks, particularly in south-east Australia, occur when cold air of Southern Ocean origin is directed northwards by intense depressions having diameters up to 2,000 kms. Cold fronts associated with the southern depressions, or with secondary depressions over the Tasman Sea, may produce strong winds and large day-to-day variations in temperature in southern areas, particularly in south-east coastal regions.

In the summer half of the year (November–April) the anticyclones travel from west to east on a more southerly track across the southern fringes of Australia, directing easterly winds generally over the continent. Fine, warmer weather predominates in southern Australia with the passage of each anticyclone. Heat waves occur when there is an interruption to the eastward progression of the anticyclone ('blocking') and winds back northerly and later north-westerly. Northern Australia comes under the influence of summer disturbances associated with the southward intrusion of warm moist monsoonal air from north of the intertropical convergence zone, resulting in a hot rainy season. Southward dips of the monsoonal low pressure trough sometimes spawn tropical depressions, and may prolong rainy conditions over northern Australia for up to three weeks at a time.

Tropical cyclones are strong, well-organised low pressure systems of tropical origin where average surface winds are expected to reach at least gale force (speed equivalent of 34–47 knots)—gusts can be up to 50% higher than the average. Winds associated with severe tropical cyclones reach at least hurricane force (64 knots)—the highest wind speed recorded in Australia was 267 kms/h, which occurred with Cyclone Olivia (April 1996). Tropical cyclones develop over the seas around northern Australia where temperatures exceed 27°C in summer. Interestingly, tropical cyclones do not usually form within 5° (or so) north or south of the Equator because the Coriolis Force associated with the rotation of the Earth is close to zero in this zone and this 'twist' is important for cyclone formation. Their frequency of occurrence and the tracks they follow vary greatly from season to season. On average, about three cyclones per season directly affect the Queensland coast, and about three affect the north and north-west coasts. Tropical cyclones approaching the coast usually produce very heavy rain and high winds in coastal areas. Some cyclones move inland, losing intensity but still producing widespread heavy rainfall and, occasionally, moderate to severe damage.

The climate of eastern and northern Australia is influenced by the Southern Oscillation (SO), a see-sawing of atmospheric pressure between the northern Australian/Indonesian region and the central Pacific Ocean. This Oscillation is one of the most important causes of climatic variation after the annual seasonal cycle over eastern and northern Australia. The strength of the SO is defined by the Southern Oscillation Index, which

is a measure of the difference in sea level atmospheric pressure between Tahiti in the central Pacific and Darwin in northern Australia. At one extreme of the Oscillation, the pressure is abnormally high at Darwin and abnormally low at Tahiti. Severe and widespread drought over eastern and northern Australia generally accompanies this extreme. These conditions generally commence early in the year, last for about 12 months, and have a recurrence period of two to seven years.

The above extreme is generally immediately preceded or followed by the opposite extreme where pressures at Darwin are abnormally low and those at Tahiti are abnormally high. In this case, rainfall is generally above average over eastern and northern Australia.

The SO is linked to sea surface temperatures (SSTs) in the Pacific Ocean. Dry extreme SO years are accompanied by above normal SSTs in the central and/or eastern equatorial Pacific and vice versa. Dry extreme years are called El Niño years (El Niño is 'baby boy' in Spanish). Wet extreme years are called La Niña years (La Niña is 'baby girl'). Continuing research into the El Niño/La Niña phenomenon is revealing the connectivity between atmospheric circulation, sea surface temperatures, currents (surface as well as deep currents) and their interaction with the land masses. An article in the *Geography and climate* chapter of *Year Book Australia, 1998* provides further detail.

## Rainfall and other precipitation

### Annual

The area of lowest rainfall is in the vicinity of Lake Eyre in South Australia, where the median annual rainfall is only about 100 mm. Another very low rainfall area is in Western Australia in the region of the Giles–Warburton Range, which has a median annual rainfall of about 150 mm. A vast region, extending from the west coast near Shark Bay across the interior of Western Australia and South Australia to south-west Queensland and north-west New South Wales, has a median annual rainfall of less than 200 mm. This region is not normally exposed to moist air masses for extended periods and rainfall is irregular, averaging only one or two days per month. However, in favourable synoptic situations, which occur infrequently over extensive parts of the region, up to 400 mm of rain may fall within a few days and cause widespread flooding.



The region with the highest median annual rainfall is the east coast of Queensland between Cairns and Cardwell, where Tully has a median of 4,048 mm (63 years to 1987 inclusive). The mountainous region of western Tasmania also has a high annual rainfall, with Lake Margaret having a median of 3,565 mm (76 years to 1987 inclusive). In the mountainous areas of north-east Victoria and some parts of the east coastal slopes there are small pockets with median annual rainfall greater than 2,500 mm.

The Snowy Mountains area in New South Wales also has a particularly high rainfall. The highest median annual rainfall for this region is 3,200 mm, and it is likely that small areas have a

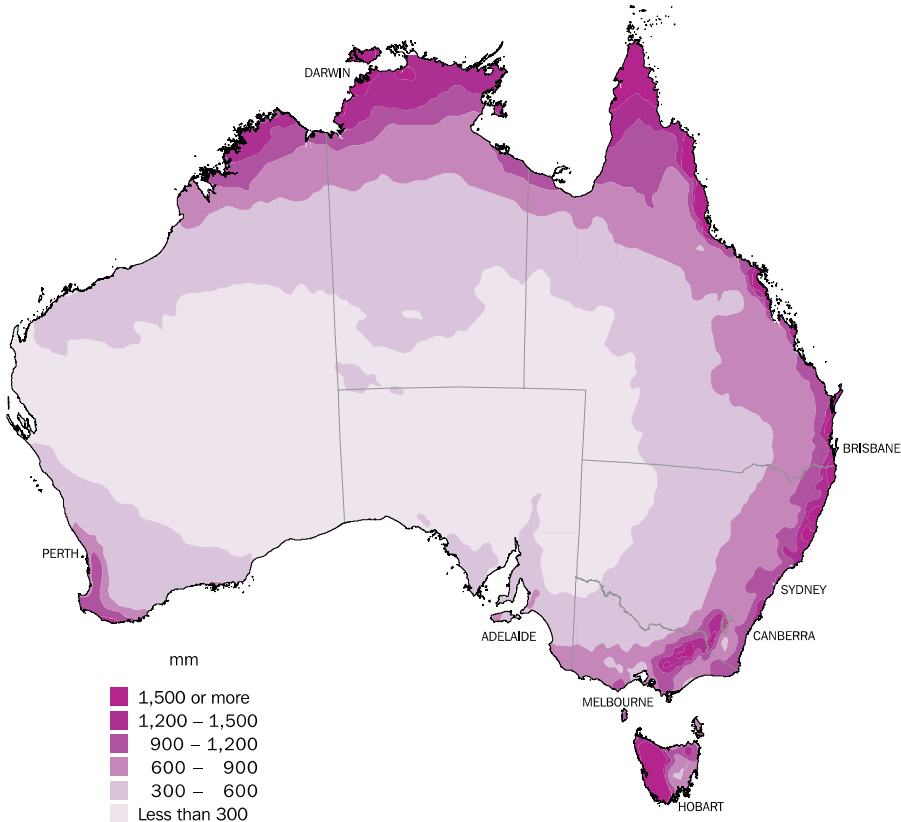
median annual rainfall approaching 4,000 mm on the western slopes above 2,000 metres elevation. Map 1.5 shows average annual rainfall over the Australian continent.

### Seasonal

As outlined earlier, the rainfall pattern of Australia is strongly seasonal in character with a winter rainfall regime in the south and a summer regime in the north.

The dominance of rainfall over other climatic elements in determining the growth of specific plants in Australia has led to the development of a climatic classification based on two main parameters, median annual rainfall and the incidence of seasonal rainfall.

**1.5 AVERAGE ANNUAL RAINFALL**



Source: Bureau of Meteorology.



Evaporation and the concept of rainfall effectiveness are taken into account to some extent in this classification by assigning higher median annual rainfall limits to the summer zones than to the corresponding uniform and winter zones. The main features of the seasonal rainfall are:

- marked wet summer (the ‘Monsoon’) and dry winter of northern Australia;
- wet summer and relatively dry winter of south-eastern Queensland and north-eastern New South Wales;
- uniform rainfall in south-eastern Australia—much of New South Wales, parts of eastern Victoria and southern Tasmania;
- marked wet winter and dry summer of south-west Western Australia and, to a lesser extent, much of the remainder of southern Australia directly influenced by westerly circulation (sometimes called a ‘Mediterranean’ climate); and
- arid area comprising about half the continent extending from the north-west coast of Western Australia across the interior and reaching the south coast at the head of the Great Australian Bight.

**Rainday frequency**

A rainday occurs when more than 0.2 mm of rain falls in 24 hours, usually from 9 a.m. to 9 a.m. the next day. The frequency of raindays exceeds 150 per year in Tasmania (with a maximum of over 200 in western Tasmania), southern Victoria, parts of the north Queensland coast and in the extreme south-west of Western Australia. Over most of the continent the frequency is less than 50 raindays per year. The area of low rainfall with high variability, extending from the north-west coast of Western Australia through the interior of the continent, has less than 25 raindays per year. In the high rainfall areas of northern Australia, the number of raindays is about 80 per year, but heavier falls occur in this region than in southern regions.

**Rainfall intensity**

The values in table 1.6 represent intensities over only small areas around the recording points because turbulence and exposure characteristics of the measuring gauge may vary over a distance of a few metres. The highest 24 hour (9 a.m. to 9 a.m.) falls are listed in table 1.7. Most of the very high 24 hour falls (above 700 mm) have occurred in the coastal strip of Queensland, where a tropical cyclone moving close to mountainous terrain provides ideal conditions for spectacular falls.

1.6 HIGHEST RAINFALL INTENSITIES

Station	Period of record	Years of complete records	Period in hours				
			1	3	6	12	24
			mm	mm	mm	mm	mm
Adelaide	1897–1998	92	59	133	141	141	141
Alice Springs	1951–1998	44	75	87	109	160	207
Brisbane	1911–1994	84	99	142	182	266	327
Broome	1948–1998	48	157	322	429	470	497
Canberra	1937–1990	42	40	57	69	99	135
Carnarvon	1956–1998	38	44	63	83	95	108
Charleville	1953–1997	42	42	66	88	118	142
Darwin (airport)	1953–1998	41	89	160	189	262	380
Esperance	1963–1998	31	39	50	62	75	86
Hobart	1911–1997	86	28	56	87	117	168
Meekatharra	1953–1998	42	60	67	81	111	120
Melbourne	1873–1998	107	75	91	91	97	130
Mildura	1953–1998	40	53	60	68	68	91
Perth	1946–1991	45	33	43	52	77	97
Sydney	1913–1998	82	120	191	197	244	340
Townsville	1953–1998	44	94	168	235	296	319

Source: Pluviograph records in Bureau of Meteorology archives.

The highest annual rainfalls are listed by State/Territory in table 1.8.

### 1.7 HIGHEST DAILY RAINFALLS(a)

State/Territory	Amount mm	Date
New South Wales		
Dorrigo (Myrtle Street)	809	21.2.1954
Lowanna (Yalamurra)	662	22.4.1974
Victoria		
Tanybryn	375	22.3.1983
Nowa Nowa (Wairawa)	275	12.3.1906
Queensland(a)		
Beerwah (Crohamhurst)	907	3.2.1893
Finch Hatton PO	878	18.2.1958
South Australia		
Motpena	273	14.3.1989
Nilpena	247	14.3.1989
Western Australia		
Roebourne (Whim Creek)	747	3.4.1898
Roebuck Plains	568	6.1.1917
Tasmania		
Cullenswood	352	22.3.1974
Mathinna	337	5.4.1929
Northern Territory		
Roper Valley Station	545	15.4.1963
Angurugu (Groote Eylandt)	513	28.3.1953

(a) Bellenden Ker (Top Station) has recorded a 24 hour total of 960 mm from 3 p.m. to 3 p.m. on 3 and 4 January 1979. The standard daily rainfall period is 9 a.m. to 9 a.m.

Source: Bureau of Meteorology.

### 1.8 HIGHEST ANNUAL RAINFALLS

State/Territory	Station	Year	Amount mm
NSW	Tallowood Point	1950	4 540
Vic.	Falls Creek SEC	1956	3 739
Qld	Bellenden Ker (Top Station)	1979	11 251
SA	Aldgate State School	1913	1 853
WA	Armadale (Jarrahdale PO)	1917	2 169
Tas.	Lake Margaret	1948	4 504
NT	Pirlangimpi	1968	2 762

Source: Bureau of Meteorology.

### Thunderstorms and hail

A thunderday at a given location is a calendar day on which thunder is heard at least once. The average annual number of thunderdays varies from 74 per year near Darwin to less than 10 per year over parts of the southern regions. Convective processes during the summer wet season cause high thunderstorm incidence in northern Australia. The generally high incidence of thunderdays (40–60 annually) over the eastern upland areas is caused mainly by orographic uplift of moist air streams.

Hail, mostly of small size (less than 10 mm diameter), occurs with winter-spring cold frontal activity in southern Australia. Summer thunderstorms, particularly over the uplands of eastern Australia, sometimes produce large hail (greater than 10 mm diameter). Large hail capable of piercing light-gauge galvanised iron occurs at irregular intervals and sometimes causes widespread damage (see the article following on the Sydney hailstorm of April 1999).

### Snow

Generally, snow covers much of the Australian Alps above 1,500 metres for varying periods from late autumn to early spring. Similarly, in Tasmania the mountains are covered fairly frequently above 1,000 metres in these seasons. The area, depth and duration are highly variable. In some years, snow falls in the altitude range of 500–1,000 metres. Snowfalls at levels below 500 metres are occasionally experienced in southern Australia, particularly in the foothill areas of Tasmania and Victoria, but falls are usually light and short lived. In some seasons, parts of the eastern uplands above 1,000 metres from Victoria to south-eastern Queensland have been covered with snow for several weeks. In ravines around Mount Kosciuszko (2,228 metres) small areas of snow may persist through summer, but there are no permanent snowfields.

# The Sydney hailstorm

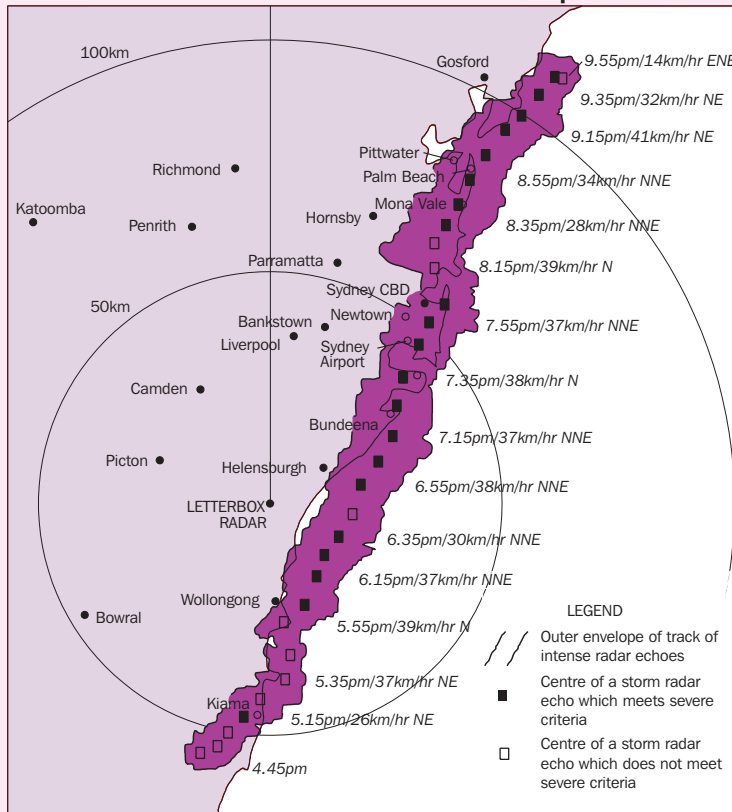
NSW and southern Queensland are particularly prone to large hail, normally in association with severe thunderstorms that develop along low pressure troughs. Many such storms have hit Sydney, but none worse than that of Wednesday, 14th April 1999. The severe hailstorm that struck the eastern suburbs of Sydney caused extensive damage. The storm represents Australia's costliest natural disaster in terms of insured losses (in excess of \$1.5b), with total losses considerably higher.

During the late afternoon a thunderstorm developed north of Nowra. It moved to the north-east over the ocean, where it changed direction, moving parallel to the coast. The storm recrossed the coast near Helensburgh and cut a path of destruction through eastern Sydney. Huge hailstones, some the size of softballs (11cm in diameter), struck the city and suburbs (particularly in the east). The onslaught

of ice, the worst since white settlement, badly damaged or destroyed many cars, partly destroyed many homes, and even damaged commercial aircraft. At least 35,000 buildings, mostly homes, suffered serious roof damage; in many cases roofs were totally destroyed.

The storm was highly unusual in regard to: the size of the hailstones in the eastern suburbs of Sydney (the largest ever recorded in the Sydney area); the duration of the storm (five and a half hours); its track (moving from land to sea, back to land; and then finally out to sea) the time of year (there was no record of giant hail in April in Sydney since 1795); and the time of day (there was a low probability of storms between 7 p.m. and 10 p.m.). It was a rare but unusually severe type of thunderstorm known as a 'supercell', the structure, intensity, movement and longevity of which are characteristically quite different from those of ordinary thunderstorms. Map 1.9 shows the path of the storm.

1.9 PATH OF THE THUNDERSTORM—14 April 1999



Source: Bureau of Meteorology.

## Temperature

### Average temperatures

Average annual air temperatures range from 28°C along the Kimberley coast in the extreme north of Western Australia to 4°C in the alpine areas of south-eastern Australia. Although annual temperatures may be used for broad comparisons, monthly temperatures are required for detailed analyses.

July is the month with the lowest average temperature in all parts of the continent. The months with the highest average temperature are January or February in the south and December in the north (except in the extreme north and north-west where it is November). The slightly lower temperatures of mid-summer in the north are due to the increase in cloud during the wet season.

### Average monthly maxima

In January, average maximum temperatures exceed 35°C over a vast area of the interior and exceed 40°C over appreciable areas of the north-west. The consistently hottest part of Australia in terms of summer maxima is around Marble Bar in Western Australia (150 kms south-east of Port Hedland) where the average is 41°C and daily maxima during summer may exceed 40°C consecutively for several weeks at a time.

In July, a more regular latitudinal distribution of average maxima is evident. Maxima range from 30°C near the north coast to 5°C in the alpine areas of the south-east.

### Average monthly minima

In January, average minima range from 27°C on the north-west coast to 5°C in the alpine areas of the south-east. In July, average minima fall below 5°C in areas south of the tropics (away from the coasts). Alpine areas record the lowest temperatures; the July average low is –5°C.

### Extreme maxima

Temperatures have exceeded 45°C at nearly all inland stations more than 150 kms from the coast and at many places on the north-west and south coasts. Temperatures have exceeded 50°C at some inland stations and at a few near the coast.

It is noteworthy that Eucla on the south coast has recorded 50.7°C, the highest temperature in Western Australia. This is due to the long trajectory over land of hot north-west winds from the Marble Bar area. Although the highest temperature recorded in Australia was 53.1°C at Cloncurry (Queensland), more stations have exceeded 50°C in western New South Wales than in other areas due to the long land trajectory of hot winds from the north-west interior of the continent.

Extreme maximum temperatures recorded at selected stations, including the highest recorded in each State/Territory, are shown in table 1.10.

**1.10 EXTREME MAXIMUM TEMPERATURES**

Station	°C	Date
New South Wales		
Wilcannia	50.0	11.1.1939
Victoria		
Swan Hill	49.4	18.1.1906
Queensland		
Cloncurry(a)	53.1	16.1.1889
South Australia		
Oodnadatta	50.7	2.1.1960
Western Australia		
Mardie	50.5	20.2.1998
Tasmania		
Bushy Park	40.8	26.12.1945
Hobart	40.8	4.1.1976
Northern Territory		
Finke	48.3	2.1.1960
Australian Capital Territory		
Canberra (Acton)	42.8	11.1.1939

(a) Under review due to possible faulty equipment.

Source: Bureau of Meteorology.

### Extreme minima

The lowest temperatures in Australia have been recorded in the Snowy Mountains, where Charlotte Pass (elevation 1,760 metres) recorded –23.0°C on 28 June 1994 (see table 1.11). Temperatures have fallen below –5°C at most inland places south of the tropics and at some places within a few kilometres of southern coasts. At Eyre, on the south coast of Western Australia, a minimum temperature of –4.3°C has been recorded, and at Swansea, on the east coast of Tasmania, the temperature has fallen as low as –5.0°C.

In the tropics, extreme minima below 0°C have been recorded at many places away from the coasts—as far north as Herberton, Queensland (−5.0°C). Even very close to the tropical coastline, temperatures have fallen to 0°C, a low recording being −0.8°C for Mackay.

1.11 EXTREME MINIMUM TEMPERATURES		
Station	°C	Date
New South Wales		
Charlotte Pass	−23.0	18.6.1994
Kiandra	−20.6	2.8.1929
Perisher Valley	−19.5	23.7.1979
Victoria		
Mount Hotham	−12.8	30.7.1931
Ormeo	−11.7	15.6.1965
Hotham Heights	−11.1	15.8.1968
Queensland		
Stanthorpe	−11.0	4.7.1895
Warwick	−10.6	12.7.1965
Mitchell	−9.4	15.8.1979
South Australia		
Yongala	−8.2	20.7.1976
Yunta	−7.7	16.7.1976
Ernabella	−7.6	19.7.1983
Western Australia		
Booylgoo Springs	−6.7	12.7.1969
Wandering	−5.7	1.6.1964
Tasmania		
Shannon	−13.0	30.6.1983
Butlers Gorge	−13.0	30.6.1983
Tarraleah	−13.0	30.6.1983
Northern Territory		
Alice Springs	−7.5	12.7.1976
Tempe Downs	−6.9	24.7.1971
Australian Capital Territory		
Gudgenby	−14.6	11.7.1971

Source: Bureau of Meteorology.

Heat waves

Periods with a number of successive days having a temperature higher than 40°C are relatively common in summer over parts of Australia. With the exception of the north-west coast of Western Australia, however, most coastal areas rarely experience more than three successive days of such conditions. The frequency increases inland, and periods of up to ten successive days have been recorded at many inland stations. This figure increases to more than 20 days in parts of western Queensland and north-west Western Australia. The central part of the Northern Territory and the Marble Bar–Nullagine area of Western Australia have recorded the most prolonged heat waves. Marble Bar is the only station in the world where

temperatures of more than 37.8°C (100°F) have been recorded on as many as 161 consecutive days (30 October 1923 to 7 April 1924).

Heat waves are experienced in the coastal areas from time to time. During 11–14 January 1939, for example, a severe heat wave affected south-eastern Australia: Adelaide had a record of 47.6°C on the 12th, Melbourne a record of 45.6°C on the 13th and Sydney a record of 45.3°C on the 14th.

The Kimberley district of Western Australia is the consistently hottest part of Australia in terms of annual average maximum temperature. Wyndham, for example, has an annual average maximum of 35.6°C.

Other aspects of climate

Frost

The frequency of frost, which can cause serious losses of agricultural crops, depends on a number of factors. In coastal areas the relatively warm ocean temperatures ameliorate those on land, while distance from the Equator and elevation above sea level are major cooling influences. In addition, variations in topography can lead to local effects such as the accumulation of cold air in frost hollows. Hence frost hazard is greatest in areas which are away from the coast, are at relatively high elevations and have complex terrain which allows cold air drainage down slopes.

Parts of Australia most subject to frost are the eastern uplands from north-eastern Victoria to the western Darling Downs in southern Queensland where there may be more than ten nights a month with readings of 0°C (or under) for three to five months of the year. On Tasmania’s Central Plateau similar conditions occur for three to six months of the year. Frosts may occur within a few miles of the coasts except in the Northern Territory and most of the north Queensland coasts.

Frosts may occur at any time of the year over most of Tasmania, large areas of the tablelands of New South Wales, much of inland Victoria, particularly the north-east, and a small part of the extreme south-west of Western Australia. Frosts commence in April and end in September over most of the interior of the continent, and on the highlands of Queensland as far north as the Atherton Plateau. Minimum temperatures below 0°C are experienced in most of the subtropical interior in June and July.

The median frost period over the continent varies from over 200 days per year in the south-eastern uplands areas south of the Hunter Valley, to none in northern Australia. The annual frost period generally decreases from about 100 days inland to below 50 days towards the coast in the southern regions of the continent, but there is widespread local variation. In Tasmania, the frost period exceeds 300 days on the uplands and decreases to 100 days near the coast.

### Humidity

Australia is a dry continent in terms of the water vapour content or humidity of the air, and this element may be compared with evaporation to which it is related. Moisture content can be expressed by a number of parameters, of which the most commonly known is relative humidity. This can be thought of as the relative evaporating power of the air; when the humidity is low, a wet surface, like our skin, can evaporate freely. When it is high, evaporation is retarded. People can feel this as discomfort or even stress as the body's ability to perspire (and hence cool) decreases with increasing relative humidity. The combination of high temperature and high humidity is potentially dangerous for people who are active in such conditions.

The main features of the relative humidity pattern are:

- over the interior of the continent there is a marked dryness during most of the year, notably towards the northern coast in the dry season (May–October);
- the coastal fringes are comparatively moist, although this is less evident along the north-west coast of Western Australia where continental effects are marked;
- in northern Australia, the highest values occur during the summer wet season (December–February) and the lowest during the winter dry season (June–August); and
- in most of southern Australia the highest values are experienced in the winter rainy season (June–August) and the lowest in summer (December–February).

### Global radiation

Global (short wave) radiation includes that radiation energy reaching the ground directly from the sun and that received indirectly from the sky, scattered downwards by clouds, dust particles, etc.

A high correlation exists between daily global radiation and daily hours of sunshine. On the north-west coast around Port Hedland, where average daily global radiation is the highest for Australia (640 milliwatt hours), average daily sunshine is also highest, being approximately ten hours. Sunshine is more dependent on variations in cloud coverage than is global radiation, since the latter includes diffuse radiation from the sky as well as direct radiation from the sun. An example is Darwin where, in the dry month of July, sunshine approaches twice that of the wet (cloudy) month of January, but global radiation amounts for the two months are comparable.

### Sunshine

Sunshine here refers to bright or direct sunshine. Australia receives relatively large amounts of sunshine although seasonal cloud formations have a notable effect on its spatial and temporal distribution. Cloud cover reduces both incoming solar radiation and outgoing long wave radiation and thus affects sunshine, air temperature and other climatic elements on the Earth's surface.

Most of the continent receives more than 3,000 hours of sunshine a year, or nearly 70% of the total possible. In central Australia and the mid-west coast of Western Australia, totals slightly in excess of 3,500 hours occur. Totals of less than 1,750 hours occur on the west coast and highlands of Tasmania; this amount is only 40% of the total possible per year (about 4,380 hours).

In southern Australia, the duration of sunshine is greatest about December when the sun is at its highest elevation, and lowest in June when the sun is lowest. In northern Australia, sunshine is generally greatest over the period August to October prior to the wet season, and least over the period January to March during the wet season.

### Cloud

Seasonal changes in cloudiness vary with the distribution of rainfall. In the southern parts of the continent, particularly in the coastal and low-lying areas, the winter months are generally more cloudy than the summer months. This is due to the formation of extensive areas of stratiform cloud and fog during the colder months, when the structure of the lower layers of the atmosphere favours the physical processes resulting in this type of cloud. Particularly strong seasonal variability of cloud cover exists in northern Australia where skies are clouded during the summer wet season and mainly cloudless during the winter dry season. Cloud coverage is greater near coasts and on the windward slopes of the eastern uplands of Australia and less over the dry interior.



## Fog

The formation of fog depends on the occurrence of favourable meteorological elements—mainly temperature, humidity, wind and cloud cover. The nature of the local terrain is important for the development of fog and there is a tendency for this phenomenon to persist in valleys and hollows. The incidence of fog may vary significantly over distances as short as one kilometre.

Fog in Australia tends to be more common in the south than the north, although parts of the east coastal areas are relatively fog-prone even in the tropics. Incidence is much greater in the colder months, particularly in the eastern uplands. Fog may persist during the day, but rarely until the afternoon over the interior. The highest fog incidence at a capital city is at Canberra which has an average of 47 days per year on which fog occurs, 29 of which are in the period May to August. Brisbane averages 20 days of fog per year. Darwin averages only two days per year, in the months of July and August.

## Winds

The mid-latitude anticyclones are the chief determinants of Australia's two main prevailing wind streams. In relation to the west-east axes of the anticyclones these streams are easterly to the north and westerly to the south. The cycles of development, motion and decay of low-pressure systems to the north and south of the anticyclones result in diversity of wind-flow patterns. Wind variations are greatest around the coasts where diurnal land and sea-breeze effects are important.

Orography affects the prevailing wind pattern in various ways, such as the channelling of winds through valleys, deflection by mountains and cold air drainage from highland areas. An example of this channelling is the high frequency of north-west winds at Hobart caused by the north-west to south-east orientation of the Derwent River Valley.

Perth is the windiest capital with an average wind speed of 15.6 kms/h; Canberra is the least windy with an average wind speed of 5.4 kms/h.

The highest wind speeds and wind gusts recorded in Australia have been associated with tropical cyclones. The highest recorded gust was 267 kms/h at Learmonth, Western Australia on 22 March 1999 (occurring with Tropical Cyclone

Vance); gusts reaching 200 kms/h have been recorded on several occasions in northern Australia with cyclone visitations. The highest gusts recorded at Australian capitals were 217 km/h at Darwin and 156 kms/h at Perth.

## Droughts

Drought, in general terms, refers to an acute deficit of water supply to meet a specified demand. The best single measure of water availability in Australia is rainfall, although parameters such as evaporation and soil moisture are significant, even dominant in some situations. Demands for water are very diverse, hence the actual declaration of drought conditions for an area will generally also depend on the effects of a naturally occurring water deficit on the principal local industries.

Since the 1860s there have been ten major Australian droughts. Some of these major droughts could be described as periods consisting of a series of dry spells of various lengths, overlapping in time and space, and totalling up to about a decade. The drought periods of 1895–1903, 1958–68, 1982–83 and 1991–95 were the most devastating in terms of their extent and effects on primary production. The latter drought resulted in a possible \$5b cost to Australia's economy, and \$590m in drought relief by the Commonwealth Government. The remaining major droughts occurred in 1864–66 (and 1868), 1880–86, 1888, 1911–16, 1918–20 and 1939–45.

In this same period, several droughts of lesser severity caused significant losses over large areas of some States. They occurred in 1922–23 and 1926–29, 1933–38, 1946–49, 1951–52, 1970–73 and 1976.

South-eastern Australia (New South Wales, southern Queensland, Victoria, Tasmania and the settled parts of South Australia) contains about 75% of the nation's population, and droughts affecting this region have a markedly adverse impact on the economy. There have been nine severe droughts in south-eastern Australia since 1888, and these were encompassed within the major Australian droughts specified previously, except for the severe drought in 1972–73. Drought definitions, and the area of coverage and length of droughts, together with related information, may be obtained from *Year Book Australia, 1988*.

## Floods

Widespread flood rainfall may occur anywhere in Australia, but it has a higher incidence in the north and in the eastern coastal areas. It is most economically damaging along the shorter streams flowing from the eastern uplands eastward to the seaboard of Queensland and New South Wales. These flood rains are notably destructive in the more densely populated coastal river valleys of New South Wales—the Tweed, Richmond, Clarence, Macleay, Hunter and Nepean–Hawkesbury—all of which experience relatively frequent flooding. Although chiefly caused by summer rains, they may occur in any season.

The great Fitzroy and Burdekin river basins of Queensland receive flood rains during the summer wet seasons. Much of the run-off due to heavy rain in north Queensland west of the eastern uplands flows southward through the normally dry channels of the network of rivers draining the interior lowlands into Lake Eyre. This widespread rain may cause floods over an extensive area, but it soon seeps away or evaporates, occasionally reaching the lake in quantity. The Condamine and other northern tributaries of the Darling also carry large volumes of water from flood rains south through western New South Wales to the Murray, and flooding occurs along their courses at times.

Flood rains occur at irregular intervals in the Murray–Murrumbidgee system of New South Wales and Victoria, the coastal streams of southern Victoria and the north coast streams of Tasmania.

## Water resources

Rainfall, or the lack of it, is the most important single factor determining land use and rural production in Australia. The scarcity of both surface and ground water resources, together with the low rates of precipitation which restrict agriculture (quite apart from economic factors), has led to extensive programs to regulate supplies by construction of dams, reservoirs, large tanks and other storages.

The major topographical feature affecting the rainfall and drainage patterns in Australia is the absence of high mountain barriers. Australia's topographical features encompass sloping tablelands and uplands along the east coast Main Divide, the low plain and marked depression in the interior, and the Great Western Plateau.

Only one-third of the Australian land area drains directly to the ocean, mainly on the coastal side of the Main Divide and inland with the Murray–Darling system. With the exception of the latter, most rivers draining to the ocean are comparatively short, but account for the majority of the country's average annual discharge. Surface drainage is totally absent from some arid areas of low relief.

Australia's large area (just under 7.7 million square kilometres) and latitudinal range (3,680 kms) have resulted in climatic conditions ranging from alpine to tropical. Two-thirds of the continent are arid or semi-arid, although good rainfalls (over 800 mm annually) occur in the northern monsoonal belt under the influence of the Australian–Asian monsoon, and along the eastern and southern highland regions under the influence of the great atmospheric depressions of the Southern Ocean. The effectiveness of the rainfall is greatly reduced by marked alternation of wet and dry seasons, unreliability from year to year, high temperatures and high potential evaporation.

The availability of water resources controls, to a large degree, the possibility and density of settlement; this in turn influences the quality of the water through production and disposal of waste. Most early settlements were established on the basis of reliable surface water supplies and, as a result, Australia's population is concentrated along the coast, mainly in the comparatively fertile, well-watered east, south-east and far south-west.

As settlement spread into the dry inland grazing country, the value of reliable supplies of underground water was realised. Observations of the disappearance of large quantities of the rainfall precipitated on the coastal ranges of eastern Australia eventually led to the discovery of the Great Artesian Basin which has become a major asset to the pastoral industry. Development, however, has not been without costs. Significant environmental degradation and deterioration in water quality are becoming evident. Table 1.12 summarises Australia's major ground water resources.

Permanent rivers and streams flow in only a small part of the continent. The average annual discharge of Australian rivers has been recently assessed at 397 teralitres, of which 100 teralitres are now estimated to be exploitable on a sustained yield basis. This is small in comparison with river flows on other continents.



**1.12 AUSTRALIA'S MAJOR GROUND WATER RESOURCES, By State/Territory**

State/Territory	Area of aquifers km <sup>2</sup>	Major divertible resource					Ground water resource
		Fresh	Marginal	Brackish	Saline	Total	Abstraction during 1983–84
		GL	GL	GL	GL	GL	GL
New South Wales	595 900	881	564	431	304	2 180	242
Victoria	103 700	469	294	69	30	862	146
Queensland	1 174 800	1 760	683	255	144	2 840	962
South Australia	486 100	102	647	375	86	1 210	504
Western Australia	2 622 000	578	1 240	652	261	2 740	355
Tasmania	7 240	47	69	8	—	124	5
Northern Territory	236 700	994	3 380	43	10	4 420	24
<b>Australia</b>	<b>5 226 440</b>	<b>4 831</b>	<b>6 877</b>	<b>1 833</b>	<b>835</b>	<b>14 376</b>	<b>2 238</b>

Source: Australian Water Resources Council, 1987.

**1.13 RAINFALL AND RUN-OFF OF THE CONTINENTS**

Continent	Area km <sup>2</sup>	Average yearly rainfall mm	Run-off mm	Run-off %	Run-off km <sup>3</sup>
Africa	30 300 000	690	260	38	7 900
Asia	45 000 000	600	290	48	13 000
Australia	7 700 000	465	57	12	440
Europe	9 800 000	640	250	39	2 500
North America	20 700 000	660	340	52	6 900
South America	17 800 000	1 630	930	57	16 700

Source: Department of Resources and Energy, 1983.

In addition, there is a pronounced concentration of run-off in the summer months in northern Australia, while the southern part of the continent has a distinct, if somewhat less marked, winter maximum.

Even in areas of high rainfall, large variability in flow means that, for local regional development, most streams must be regulated by surface storage. However, in many areas evaporation is so great that storage costs are high in terms of yield. Extreme floods also add greatly to the cost of water storage, because of the need for adequate spillway capacity.

Table 1.13 provides a broad comparison of rainfall and run-off by continent. Map 1.14 shows the location of Australia's Drainage Divisions, and table 1.15 summarises Australia's surface water resources by Drainage Division. The Drainage Division with the highest intensity of run-off was Tasmania with 13% of the total from only 0.8% of the area. Conversely, the vast area of the Western Plateau (2,450,000 square kilometres, approximately 32% of Australia) has no significant run-off at all.

To summarise, the mean annual run-off across Australia is 397 million megalitres. As table 1.13 shows, the portion of run-off able to be diverted for use is very low compared with other continents, and results from the high variability of stream flow, high rates of evaporation and the lack of storage sites on many catchments. On an Australia-wide basis, only 21.5% of the divertible resource has currently been developed for use; much of the remaining resource is available in remote regions where development is impractical and uneconomic. In areas such as the Murray–Darling Division, where water is scarce, there are few resources not yet developed, and management is focusing on greater efficiency in water use.

Water resources are assessed within a framework comprising four levels:

- the total water resource is the volume of water present in the environment, measured as mean annual run-off for surface water, and mean annual recharge for ground water;
- the divertible resource is the portion of run-off and recharge which can be developed for use;

- the developed resource is the portion of the divertible resource which has been developed for use; and
- resource utilisation is a measure of the portion of the developed resource which is actually used.

Emphasis is given to the second level of assessment, the divertible resource, as the prime measure of the resource. The divertible resource is defined as the average annual volume of water which, using current technology, could be removed from developed or potential surface water or ground water sources on a sustained basis, without causing adverse effects or long-term depletion of storages.

Australia's water resources are managed by a large number of resource management agencies,

irrigation authorities, metropolitan water boards, local government councils and private individuals. State authorities dominate the assessment and control of water resources as, under the Commonwealth Constitution, primary responsibility for management of water rests with the individual State Governments. The Commonwealth Government is responsible for matters relating to the Territories, and participates indirectly through financial assistance or directly in the coordination or operation of interstate projects through bodies such as the Murray–Darling Basin Commission.

A description of the management, main storage and use of water resources across the States and Territories is contained in the chapter *Water resources* in the 1994 and earlier editions of *Year Book Australia*.

#### 1.14 LOCATION OF DRAINAGE DIVISIONS



Source: AUSLIG.

## 1.15 SURFACE WATER RESOURCES, By Drainage Division

Drainage division	Surface water resource								
	Area km <sup>2</sup>	Mean annual run-off GL	Mean annual outflow GL	Major divertible resource				Total GL	Developed resource GL
				Fresh GL	Marginal GL	Brackish GL	Saline GL		
North-East Coast	451 000	83 900	83 900	22 900	0	0	0	22 900	3 540
South-East Coast	274 000	41 900	41 900	14 700	236	113	16	15 100	4 280
Tasmania	68 200	52 900	52 900	10 900	0	0	0	10 900	1 020
Murray–Darling	1 060 000	24 300	12 200	12 300	42	32	0	12 400	10 000
South Australian Gulf	82 300	877	767	160	71	34	4	269	118
South-West Coast	315 000	6 670	6 600	1 390	466	894	164	2 870	385
Indian Ocean	519 000	3 960	3 840	235	50	7	4	295	27
Timor Sea	547 000	80 700	80 700	22 000	0	0	0	22 000	1 980
Gulf of Carpentaria	641 000	92 500	92 500	13 200	0	0	0	13 200	78
Lake Eyre	1 170 000	6 310	0	204	0	0	0	204	26
Bulloo–Bancannia	101 000	1 090	0	41	0	0	0	41	0
Western Plateau	2 450 000	1 580	0	102	0	0	0	102	0
<b>Total(a)</b>	<b>(b)7 680 000</b>	<b>397 000</b>	<b>375 307</b>	<b>98 100</b>	<b>865</b>	<b>1 080</b>	<b>188</b>	<b>100 000</b>	<b>21 500</b>

(a) Totals rounded. (b) Total area differs slightly from that in table 1.1, due to improvements in mapping reflected in that table, but not in this table from an earlier source.

Source: Australian Water Resources Council, 1987.

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# Climate and the Sydney 2000 Olympic Games

The Olympic Games are the largest sporting event in the world. During the Sydney 2000 Olympic Games, more than 15,000 athletes and team officials are expected to be involved in 28 sports; during the Sydney Paralympic Games, some 7,000 athletes and team officials will be involved in 18 sports.

Local climate factors such as heat, humidity and wind are important considerations in preparing for and organising the Olympic Games. Information about the local climate and thermal comfort is important for athletes to attain peak performance. Athletes have the ability to precondition themselves to varying climates by training in

climatic conditions similar to those in which they will compete. Chill and Heat Indexes are also used as tools by coaches, as indicators of the effect on playing conditions of the climate elements. In Sydney, both indices are likely to remain in the comfort zone during September and October.

The extensive records held by the Bureau of Meteorology archives have been analysed for the period 1 September to 31 October 2000 (see table S2.1). This covers the time from when the competitors arrive at the Olympic Village, through the Olympic Games themselves (15 September to 1 October), until the conclusion of the Paralympic Games (18–29 October).

S2.1 CLIMATE ALMANAC FOR SYDNEY

Day	Maximum temperatures (°C)			Minimum temperatures (°C)			Frequency of rain (%)		
	Mean	Highest	Year	Mean	Lowest	Year	All rain	>=2mm	>=10mm
SEPTEMBER									
1	18.4	27.5	1865	9.7	5.1	1864	29	14	4
2	18.9	28.2	1865	9.6	4.9	1945	36	9	14
3	18.9	29.1	1865	9.9	5.6	1869	34	16	7
4	19.1	28.9	1915	10.0	5.1	1875	32	15	7
5	18.8	28.3	1962	10.2	5.1	1875	35	15	5
6	19.3	27.9	1953	10.0	5.2	1995	36	19	4
7	19.4	28.9	1953	10.4	5.0	1905	33	18	6
8	19.4	31.3	1953	10.1	5.2	1919	32	16	5
9	19.5	29.6	1981	10.5	5.5	1869	36	16	4
10	19.3	28.3	1989	10.6	5.6	1947	38	19	7
11	19.4	29.9	1946	10.8	6.1	1927	41	23	10
12	19.8	31.7	1946	10.6	5.6	1939	43	2	7
13	19.4	30.7	1946	10.9	6.0	1884	33	14	5
14	19.4	30.7	1901	10.9	5.8	1933	39	16	7
15	19.7	29.3	1942	10.8	5.6	1908	39	21	7
16	19.6	29.9	1996	10.7	6.0	1927	36	22	7
17	19.8	31.4	1928	10.9	5.8	1908	39	20	6
18	20.1	30.3	1951	10.9	6.1	1944	31	13	5
19	20.2	31.2	1919	11.2	5.0	1859	32	16	4
20	20.5	30.9	1931	11.2	6.2	1860	39	23	9
21	20.4	31.8	1907	11.5	5.9	1861	32	16	6
22	20.8	32.1	1898	11.9	6.6	1994	34	27	6
23	20.3	31.3	1907	11.5	6.2	1874	34	19	7
24	20.2	32.8	1907	11.5	6.5	1946	35	23	9
25	19.8	34.2	1980	11.5	6.1	1870	41	21	5
26	20.0	34.6	1965	11.5	6.2	1927	37	19	7
27	20.3	33.5	1919	11.8	6.7	1920	45	25	6
28	20.5	32.6	1987	12.0	6.4	1905	36	24	12
29	20.8	31.5	1937	11.9	6.3	1904	35	21	7
30	20.7	32.9	1973	12.1	5.6	1904	41	21	9

...continued

**S2.1 CLIMATE ALMANAC FOR SYDNEY—continued**

Day	Maximum temperatures (°C)			Minimum temperatures (°C)			Frequency of rain (%)		
	Mean	Highest	Year	Mean	Lowest	Year	All rain	>=2mm	>=10mm
OCTOBER									
<b>1</b>	<b>20.8</b>	<b>33.1</b>	<b>1961</b>	<b>12.2</b>	<b>6.6</b>	<b>1904</b>	<b>38</b>	<b>19</b>	<b>4</b>
2	20.9	34.3	1981	12.3	6.2	1918	38	19	7
3	20.9	33.4	1977	12.3	5.7	1918	35	19	7
4	21.3	37.4	1942	12.6	6.5	1918	35	19	10
5	20.8	33.2	1970	12.6	7.6	1927	45	24	8
6	20.9	32.6	1991	12.5	5.7	1927	40	21	6
7	22.1	36.7	1827	13.0	7.9	1915	34	17	3
8	22.0	35.9	1936	13.2	7.7	1966	31	14	4
9	22.0	35.2	1944	13.3	6.7	1905	33	16	7
10	22.0	35.6	1944	13.3	7.2	1917	39	20	7
11	21.7	35.0	1997	13.2	8.1	1993	36	23	1%
12	21.7	35.6	1874	13.0	7.8	1862	42	22	7
13	21.6	35.7	1946	13.1	7.3	1876	36	23	6
14	21.8	35.6	1944	13.4	7.3	1865	41	21	7
15	21.9	35.3	1940	13.5	8.3	1866	38	18	7
16	21.8	34.5	1991	13.5	8.1	1946	41	19	4
17	22.1	34.8	1968	13.4	8.3	1946	33	21	10
<b>18</b>	<b>21.9</b>	<b>34.6</b>	<b>1887</b>	<b>13.4</b>	<b>8.1</b>	<b>1944</b>	<b>36</b>	<b>20</b>	<b>9</b>
<b>19</b>	<b>21.7</b>	<b>37.2</b>	<b>1898</b>	<b>13.6</b>	<b>8.8</b>	<b>1891</b>	<b>42</b>	<b>22</b>	<b>7</b>
<b>20</b>	<b>22.3</b>	<b>36.3</b>	<b>1900</b>	<b>13.9</b>	<b>8.3</b>	<b>1944</b>	<b>43</b>	<b>20</b>	<b>5</b>
<b>21</b>	<b>21.8</b>	<b>32.8</b>	<b>1913</b>	<b>13.7</b>	<b>8.4</b>	<b>1908</b>	<b>38</b>	<b>24</b>	<b>11</b>
<b>22</b>	<b>22.4</b>	<b>34.8</b>	<b>1923</b>	<b>13.8</b>	<b>7.2</b>	<b>1942</b>	<b>39</b>	<b>23</b>	<b>8</b>
<b>23</b>	<b>22.0</b>	<b>36.2</b>	<b>1926</b>	<b>14.0</b>	<b>7.2</b>	<b>1881</b>	<b>39</b>	<b>19</b>	<b>6</b>
<b>24</b>	<b>22.2</b>	<b>36.7</b>	<b>1867</b>	<b>14.0</b>	<b>8.9</b>	<b>1947</b>	<b>40</b>	<b>19</b>	<b>7</b>
<b>25</b>	<b>21.6</b>	<b>34.4</b>	<b>1910</b>	<b>13.9</b>	<b>7.8</b>	<b>1931</b>	<b>43</b>	<b>24</b>	<b>6</b>
<b>26</b>	<b>22.6</b>	<b>36.2</b>	<b>1948</b>	<b>13.9</b>	<b>8.9</b>	<b>1946</b>	<b>35</b>	<b>19</b>	<b>7</b>
<b>27</b>	<b>23.0</b>	<b>35.3</b>	<b>1935</b>	<b>14.3</b>	<b>7.7</b>	<b>1899</b>	<b>39</b>	<b>21</b>	<b>8</b>
<b>28</b>	<b>22.6</b>	<b>33.8</b>	<b>1968</b>	<b>14.3</b>	<b>7.8</b>	<b>1864</b>	<b>33</b>	<b>17</b>	<b>6</b>
<b>29</b>	<b>22.8</b>	<b>36.8</b>	<b>1988</b>	<b>14.4</b>	<b>8.8</b>	<b>1864</b>	<b>37</b>	<b>24</b>	<b>9</b>
30	23.2	35.7	1958	14.7	8.9	1864	35	17	4
31	23.1	35.0	1927	14.8	9.2	1962	41	21	5

Source: National Climate Centre, Bureau of Meteorology.

All outdoor sports can be affected by extreme weather events. These include:

- thunderstorms with associated lightning, winds and hail;
- heavy rain that obscures targets, inhibits viewing or covers the playing surface; and
- heavy fog.

These conditions can stop play as they endanger both competitors and spectators. The Bureau of Meteorology will be providing regular and extensive weather forecasts and special bulletins during September and October 2000. This will ensure that both athletes and spectators receive adequate warnings of these extreme weather events.

Other weather conditions can affect individual sports:

- rowing is affected if the wind conditions give an unfair advantage to one or more lanes, or create waves that make the course unusable for rowing;
- sailing events are affected by wind, and therefore will only take place if the wind speed is between 5 and 25 knots (9.2 to 46.3 kms/h);
- tennis can be halted by persistent or heavy rain; and
- athletics will be delayed if rain makes the surface hazardous, or makes events such as the pole vault dangerous.

In addition, in international competition, if the wind velocity (measured in the direction of running behind the competitor) averages more than 2 metres per second, a record will not be accepted.

The major influences on Sydney's climate are the topography in and around the Sydney area, the sea-surface temperature of the coastal waters, and the orientation of the coastline.

The Sydney region is bowl shaped, with the low flood plain of the Nepean–Hawkesbury River forming the central part of the bowl about 50 kilometres from the coast. Sydney Olympic Park, at Homebush Bay, is 28 metres above mean sea level, and the highest venue is the Equestrian Centre at Horsley Park which is 100 metres above sea level.

Despite the relatively low height of the mountains (the Great Dividing Range) to the west, they have a profound effect on the rainfall of the Sydney region. South-westerly winds must pass over the mountain range before reaching the coast and will often lose their moisture on the southern and western slopes. However, a flow from the south or east finds the coast and the ranges a significant barrier. Therefore the heaviest rains in the Sydney region tend to come from these airstreams.

The major local current off the New South Wales coast is the East Australian current which brings warm water from the Coral Sea into the cooler Tasman Sea, keeping the sea surface temperatures off Sydney relatively warm.

The nearby Tasman Sea and the extensive inlets and waterways of the Sydney region also help to

modify the coastal climate. As a result, Sydney has a temperate climate with warm, sometimes hot summers, cool winters and mainly reliable rainfall all year.

Sydney's climate is generally cool to mild in September and mild in October. September and October are the first months of spring, with mild to warm temperatures during the day and cool to mild nights—although the occasional hot day and cold night do occur. Humidity is moderate, both during the morning and afternoon. Only a few fogs develop in Sydney's west and these dissipate early. Thunderstorms are generally few, increasing in frequency in late spring.

September and October are among Sydney's windiest months, with an average of three and four days respectively per month experiencing winds of more than 40 kms/h (22 knots). Such strong winds favour southerly to westerly directions. During October strong winds are more prevalent from the south and sea-breezes become more common.

In the Sydney region, Ultraviolet Radiation (UV) is at its most intense from late morning to mid-afternoon; the average maximum 'clear sky' UV Index value occurs in the early afternoon.

Windy days and mild temperatures characterise a typical spring day in Sydney, making it generally a season of good overall air quality and, compared to some previous Olympic cities, the climate for Sydney can be expected to be mild.

## 2

# Government

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## Introduction

There are three levels of government in Australia: Federal, State and local.

The six Australian colonies federated in 1901 to form the Commonwealth of Australia. Most of the Commonwealth Parliament's legislative powers are enumerated in Section 51 of the Constitution. Areas of power not specified remain the responsibility of the States and Territories. A system of local government, established under State legislation, creates a third tier of government. In 1999, Australia had 822 elected members of Parliament, of whom 224 were Commonwealth and 598 State and Territory members.

Both the State and the Commonwealth systems of government derive from the British Westminster system, although many features of the Commonwealth Constitution (including the federal structure) are based on the United States Constitution. Generally, however, the salient features of the Westminster system have been retained. Ministers are members of Parliament, and are required to be accountable and answerable to it. In the twentieth century, Australia has been characterised by a strong party system and adversarial style of politics between the government and opposition.

This chapter outlines the basic features of the constitutional structure of the Commonwealth Parliament and Government and its electoral system, and the role of the Commonwealth Parliament and its relationship to the Executive, and provides details of the Ministry and other political leaders.

The Australian Constitution is reproduced in *Year Book Australia* from time to time, the latest being the 1998 edition.

A chapter outlining Australia's prehistory to Federation was contained in the 1991 and earlier Year Books.

## Parliamentary government

### Scheme of parliamentary government

Under the Australian Constitution the legislative power of the Commonwealth of Australia is vested in the Parliament of the Commonwealth,

which consists of the Queen, the Senate and the House of Representatives. The Queen is represented throughout the Commonwealth by the Governor-General. In each Australian State there is a State Governor, who is the representative of the Queen for the State. The Governor has such powers within the State as are conferred upon him/her by the Letters Patent constituting his/her office, and he/she exercises these powers in accordance with instructions issued to him/her by the Queen, detailing the manner in which his/her duties are to be fulfilled.

No Act of the Parliament of the United Kingdom passed after the commencement of the *Australia Act 1986* extends, or is deemed to extend, to the Commonwealth of Australia or to an Australian State or Territory as part of the law of the Commonwealth, of the State or of the Territory. Further, the restrictions that formerly existed on the legislative powers of the Parliaments of the States were removed by the Act.

In the Commonwealth Parliament the Upper House is known as the Senate, and in the bicameral State Parliaments as the Legislative Council. The Legislature in all States was bicameral until 1922 when the Queensland Parliament became unicameral upon the abolition of the Upper House. In the Commonwealth Parliament the Lower House is known as the House of Representatives; in the State Parliaments of New South Wales, Victoria and Western Australia as the Legislative Assembly; and in the State Parliaments of South Australia and Tasmania as the House of Assembly. The single House of Parliament in Queensland, the Northern Territory and the Australian Capital Territory is known as the Legislative Assembly. The extent of the legislative powers of each of the Parliaments is defined by the Australian and State Constitutions, respectively. In those States that have a bicameral legislature, the Legislative Assembly or House of Assembly, as the case may be, is the larger House.

The members of the Parliaments of each State are elected by the people, the franchise extending to Australian citizens who are at least 18 and possess certain residential qualifications. For the Commonwealth Parliament the qualifications for the franchise are identical for both Houses, extending to Australian citizens (and British subjects on the electoral roll on 25 January 1984) who are 18 or older. See also the later section *Qualifications for membership and for franchise*.

## The Sovereign

On 7 February 1952, the then Governor-General of the Commonwealth of Australia, acting with advice of members of the Federal Executive Council, proclaimed Princess Elizabeth as 'Queen Elizabeth the Second, Queen of this Realm and of all Her other Realms and Territories, Head of the Commonwealth, Defender of the Faith, Supreme Liege Lady in and over the Commonwealth of Australia'. By the *Royal Style and Titles Act 1973*, which Her Majesty assented to in Canberra on 19 October 1973, the Commonwealth Parliament assented to the adoption by Her Majesty, for use in relation to Australia and its Territories, of the Style and Titles set out in the Schedule to that Act. On the same day, also in Canberra, Her Majesty issued a Proclamation, under the Great Seal of Australia, appointing and declaring that Her Majesty's Style and Titles should henceforth be, in relation to Australia and its Territories, 'Elizabeth the Second, by the Grace of God Queen of Australia and Her other Realms and Territories, Head of the Commonwealth'.

## The Governor-General

### Powers and functions

Under the Australian Constitution, the Governor-General exercises the executive power of the Commonwealth of Australia, and certain other powers and functions conferred by the Constitution that include, among others, the powers to appoint times for holding the sessions of the Parliament, to prorogue Parliament, and to dissolve the House of Representatives; to cause writs to be issued for general elections of members of the House of Representatives; to assent in the Queen's name to a proposed law passed by both Houses of the Parliament; to choose and summon Executive Councillors, who hold office during the Governor-General's pleasure; and to appoint Ministers of State for the Commonwealth of Australia. In addition, the Governor-General, as the Queen's representative, is Commander-in-Chief of the Defence Forces.

Many Acts of the Commonwealth Parliament provide that the Governor-General may make regulations to give effect to the Acts. The Governor-General may also be authorised by statute to issue proclamations, for example, to declare an Act in force. The Governor-General has been given power by statute to legislate for certain of the Australian Territories. Under the provisions of the Constitution, as well as by the conventions of responsible government in British

Commonwealth countries, the Governor-General's executive functions are exercised on the advice of Ministers of State.

### Holders of office

The present Governor-General is His Excellency the Honourable Sir William Patrick Deane, AC, KBE. Those persons who have held the office of Governor-General from the inception of the Commonwealth of Australia until 1988 are pictured in *Year Book Australia*, 1988.

### Administrators

In addition to the holders of the office of Governor-General, certain persons have, from time to time, been appointed by the Queen to administer the Government of the Commonwealth of Australia. These persons are appointed in the event of the death, incapacity, removal from office or absence from Australia of the Governor-General.

## Governors of the States

### Powers and functions

The Queen is represented in each of the Australian States by a Governor, the office having been constituted by Letters Patent issued under the Great Seal of the United Kingdom on various dates. The Governors of the States exercise prerogative powers conferred on them by these Letters Patent, their commissions of appointment and the Governor's Instructions given to them under the Royal Sign Manual and Signet or other instrument, as specified in the Letters Patent. In addition, they have been invested with various statutory functions by State Constitutions and the Commonwealth *Australia Act 1986*, as well as under the Acts of the Parliaments of the States.

A Governor of a State assents in the Queen's name to Bills passed by the Parliament of the State. Since the enactment of the *Australia Act 1986*, an Act of Parliament of a State that has been assented to by the Governor of the State is no longer subject to disallowance by the Queen or suspension pending signification of the Queen's pleasure. The Governor administers the prerogative of mercy by the reprieve or pardon of criminal offenders within his/her jurisdiction, and may remit fines and penalties due to the Crown in right of the State. In the performance of his/her functions generally, particularly those conferred by statute, the Governor of a State acts on the advice of Ministers of State for that State.

2.1 STATE GOVERNORS, Holders of Office—September 1999

State/Territory	State Governors
New South Wales	His Excellency the Honourable Gordon Samuels, AC, QC
Victoria	His Excellency the Honourable Sir James Augustine Gobbo, AC, QC
Queensland	His Excellency Major-General Peter Arnison, AO
South Australia	His Excellency Sir Eric James Neal, AC, CVO
Western Australia	His Excellency Major-General Philip Michael Jeffery, AC, MC
Tasmania	His Excellency the Honourable Sir Guy Stephen Montague Green, AC, KBE
Northern Territory(a)	His Honour the Administrator Dr Neil Raymond Conn, AO

(a) Administrator of the Northern Territory.

Source: Department of the Parliamentary Library.

**Holders of office**

Table 2.1 shows the Governors of the States at September 1999.

**Commonwealth Government  
Commonwealth Parliaments and  
Ministries**

**How are governments formed?**

Under our political system at the Federal level, the Ministry must have the confidence of the House of Representatives. For that reason, the Prime Minister is also the leader of the party or coalition of parties holding a majority of the seats in the House, and Ministers are members of the same party or coalition. In most cases, new governments are formed after general elections have been held to determine the composition of the House, but a new government could also be formed on any occasion between elections if the majority party changes its leader, or loses its majority (e.g. as a result of a by-election), or is defeated in an important vote in the House through the defection of backbench members of the party. Reshuffles of the Ministry may occur at any time between elections; in that case there is no spill of all positions such as occurs in the formation of a new ministry.

After an election, the Governor-General sends for the leader of the party or coalition which has secured a majority in the House of Representatives and commissions that person to form a government. The incoming Prime Minister then goes about the process of finding members of his or her parliamentary party or coalition to serve as Ministers in the Government.

**The role of Parliament**

Parliament has four important functions: to provide for the formation of a government; to legislate; to provide a forum for popular representation; and to scrutinise the actions of government.

The formation of a government is the most important outcome of a general election. Either the Government is returned, by virtue of retaining a majority of seats in the House of Representatives, or the opposition party or coalition of parties wins a majority, resulting in the formation of a new government.

More than half of Parliament's time is taken up with the consideration of proposed legislation. Between 150 and 250 bills are passed each year. Most bills are not contentious, being 'machinery' legislation necessary for the orderly processes of government. A great many bills are amendment bills, proposing alterations to existing legislation. Most of the bills are government bills, the policies originating in Cabinet or in government departments and composed by parliamentary drafters. Parliamentary deliberation frequently results in amendments to the proposed legislation, often as a result of representations to Senators and Members by those affected by the legislation.

The representation of the people is an important role of those elected to Parliament. Looking after constituents occupies a great deal of their time. The relative importance of this role may be judged by the high proportion of time spent by Members in their electorates and away from Parliament.

The public interest is served by the operations of a range of committees from each House, or joint committees, comprising both Senators and Members, which achieve a non-partisan scrutiny of government operations and conduct frequent inquiries into a range of issues.

Committees of the Parliament are established in order that its legislative, inquiry and scrutiny functions can be carried out more thoroughly and with the benefit of expert advice available to committees. The composition and procedures of committees, being reasonably flexible and informal, allow them to perform these functions better than would the Houses themselves meeting in their chambers.

### **Parliament and the executive**

The idea that Parliament ‘controls’ Ministers, as well as government policy and the departments and statutory bodies which implement these policies, is a concept which had more relevance in the nineteenth century than it does today. Stable majority party government in the twentieth century is perhaps the main reason for the decline in absolute parliamentary control and for the decline in the influence of Parliament relative to that of the Executive. Government business takes nearly half of the time of the Parliament, and Parliament’s agenda is largely determined by Cabinet decisions and the legislative timetabling requirements of Ministers. Today it is more realistic to speak of Parliament influencing or guiding the Executive, or of Parliament scrutinising the actions of executive government and recommending or pressing upon it different courses of action. This influence is exerted in many ways through the procedures of each House and through question time in each House.

Two aspects of parliamentary control over executive government are worthy of special mention. The first relates to the legislative power of the Parliament; the second to influence and control through committees of the Parliament. Government bills are debated in each House. Many questions and queries may be raised in the

House of Representatives and amendments are moved there. Because governments enjoy a majority in the House, amendments cannot be forced on government bills; whether or not they are accepted depends on the wishes of the Government.

It is a different story in the Senate, where no government has enjoyed a majority since 1981. If the Government wants legislation passed by the Senate it often has to agree to amendments proposed by the Opposition and minor parties. The Senate is far more active than the House in sending proposed legislation to committees.

Parliamentary influence over executive government takes various forms. At one level the close interest in and scrutiny of proceedings in the House of Representatives means that, although party discipline will ultimately protect the Executive on the floor of the House, Members of the House are able to exert powerful but often indirect influence on government.

Table 2.2 shows the number and duration of parliaments since Federation.

Table 2.3 shows the name of each Commonwealth Government Ministry to hold office since 1 January 1901 and the dates of its term of office.

In *Year Book Australia, 1924* the names are given of each Ministry up to the Bruce–Page Ministry together with the names of the successive holders of portfolios therein. *Year Book Australia, 1953* contains a list which covers the period between 9 February 1923, the date on which the Bruce–Page Ministry assumed power, and 31 July 1951, showing the names of all persons who held office in each Ministry during that period. The names of members of subsequent Ministries are listed in issues of *Year Book Australia, 1953* to 1975–76 inclusive, and in successive issues from 1980.

Particulars of the Second Howard Ministry are shown in table 2.4.

## 2.2 COMMONWEALTH PARLIAMENTS

Number of Parliament	Date of opening	Date of dissolution
First	9 May 1901	23 November 1903
Second	2 March 1904	5 November 1906
Third	20 February 1907	19 February 1910
Fourth	1 July 1910	23 April 1913
Fifth	9 July 1913	30 July 1914(a)
Sixth	8 October 1914	26 March 1917
Seventh	14 June 1917	3 November 1919
Eighth	26 February 1920	6 November 1922
Ninth	28 February 1923	3 October 1925
Tenth	13 January 1926	9 October 1928
Eleventh	6 February 1929	16 September 1929
Twelfth	20 November 1929	27 November 1931
Thirteenth	17 February 1932	7 August 1934
Fourteenth	23 October 1934	21 September 1937
Fifteenth	30 November 1937	27 August 1940
Sixteenth	20 November 1940	7 July 1943
Seventeenth	23 September 1943	16 August 1946
Eighteenth	6 November 1946	1 October 1949
Nineteenth	22 February 1950	19 March 1951(a)
Twentieth	12 June 1951	21 April 1954
Twenty-first	4 August 1954	4 November 1955
Twenty-second	15 February 1956	14 October 1958
Twenty-third	17 February 1959	2 November 1961
Twenty-fourth	20 February 1962	1 November 1963
Twenty-fifth	25 February 1964	31 October 1966
Twenty-sixth	21 February 1967	29 September 1969
Twenty-seventh	25 November 1969	2 November 1972
Twenty-eighth	27 February 1973	11 April 1974(a)
Twenty-ninth	9 July 1974	11 November 1975(a)
Thirtieth	17 February 1976	8 November 1977
Thirty-first	21 February 1978	19 September 1980
Thirty-second	25 November 1980	4 February 1983(a)
Thirty-third	21 April 1983	26 October 1984
Thirty-fourth	21 February 1985	5 June 1987(a)
Thirty-fifth	14 September 1987	19 February 1990
Thirty-sixth	8 May 1990	8 February 1993
Thirty-seventh	4 May 1993	29 January 1996
Thirty-eighth	30 April 1996	31 August 1998
Thirty-ninth	10 November 1998	—

(a) A dissolution of both the Senate and the House of Representatives was granted by the Governor-General under section 57 of the Constitution.

Source: *Department of the Parliamentary Library*.

## 2.3 COMMONWEALTH GOVERNMENT MINISTRIES SINCE 1901

	Ministry	Period of office
(i)	BARTON MINISTRY	1 January 1901 to 24 September 1903
(ii)	DEAKIN MINISTRY	24 September 1903 to 27 April 1904
(iii)	WATSON MINISTRY	27 April 1904 to 17 August 1904
(iv)	REID-McLEAN MINISTRY	18 August 1904 to 5 July 1905
(v)	DEAKIN MINISTRY	5 July 1905 to 13 November 1908
(vi)	FISHER MINISTRY	13 November 1908 to 2 June 1909
(vii)	DEAKIN MINISTRY	2 June 1909 to 29 April 1910
(viii)	FISHER MINISTRY	29 April 1910 to 24 June 1913
(ix)	COOK MINISTRY	24 June 1913 to 17 September 1914
(x)	FISHER MINISTRY	17 September 1914 to 27 October 1915
(xi)	HUGHES MINISTRY	27 October 1915 to 14 November 1916
(xii)	HUGHES MINISTRY	14 November 1916 to 17 February 1917
(xiii)	HUGHES MINISTRY	17 February 1917 to 8 January 1918
(xiv)	HUGHES MINISTRY	10 January 1918 to 9 February 1923
(xv)	BRUCE-PAGE MINISTRY	9 February 1923 to 22 October 1929
(xvi)	SCULLIN MINISTRY	22 October 1929 to 6 January 1932
(xvii)	LYONS MINISTRY	6 January 1932 to 7 November 1938
(xviii)	LYONS MINISTRY	7 November 1938 to 7 April 1939
(xix)	PAGE MINISTRY	7 April 1939 to 26 April 1939
(xx)	MENZIES MINISTRY	26 April 1939 to 14 March 1940
(xxi)	MENZIES MINISTRY	14 March 1940 to 28 October 1940
(xxii)	MENZIES MINISTRY	28 October 1940 to 29 August 1941
(xxiii)	FADDEN MINISTRY	29 August 1941 to 7 October 1941
(xxiv)	CURTIN MINISTRY	7 October 1941 to 21 September 1943
(xxv)	CURTIN MINISTRY	21 September 1943 to 6 July 1945
(xxvi)	FORDE MINISTRY	6 July 1945 to 13 July 1945
(xxvii)	CHIFLEY MINISTRY	13 July 1945 to 1 November 1946
(xxviii)	CHIFLEY MINISTRY	1 November 1946 to 19 December 1949
(xxix)	MENZIES MINISTRY	19 December 1949 to 11 May 1951
(xxx)	MENZIES MINISTRY	11 May 1951 to 11 January 1956
(xxxi)	MENZIES MINISTRY	11 January 1956 to 10 December 1958
(xxxii)	MENZIES MINISTRY	10 December 1958 to 18 December 1963
(xxxiii)	MENZIES MINISTRY	18 December 1963 to 26 January 1966
(xxxiv)	HOLT MINISTRY	26 January 1966 to 14 December 1966
(xxxv)	HOLT MINISTRY	14 December 1966 to 19 December 1967
(xxxvi)	McEWEN MINISTRY	19 December 1967 to 10 January 1968
(xxxvii)	GORTON MINISTRY	10 January 1968 to 28 February 1968
(xxxviii)	GORTON MINISTRY	28 February 1968 to 12 November 1969
(xxxix)	GORTON MINISTRY	12 November 1969 to 10 March 1971
(xl)	McMAHON MINISTRY	10 March 1971 to 5 December 1972
(xli)	WHITLAM MINISTRY	5 December 1972 to 19 December 1972
(xlii)	WHITLAM MINISTRY	19 December 1972 to 11 November 1975
(xliii)	FRASER MINISTRY	11 November 1975 to 22 December 1975
(xliv)	FRASER MINISTRY	22 December 1975 to 20 December 1977
(xlv)	FRASER MINISTRY	20 December 1977 to 3 November 1980
(xlvi)	FRASER MINISTRY	3 November 1980 to 7 May 1982
(xlvii)	FRASER MINISTRY	7 May 1982 to 11 March 1983
(xlviii)	HAWKE MINISTRY	11 March 1983 to 13 December 1984
(xlix)	HAWKE MINISTRY	13 December 1984 to 24 July 1987
(l)	HAWKE MINISTRY	24 July 1987 to 4 April 1990
(li)	HAWKE MINISTRY	4 April 1990 to 20 December 1991
(lii)	KEATING MINISTRY	20 December 1991 to 24 March 1993
(liii)	KEATING MINISTRY	24 March 1993 to 11 March 1996
(liv)	HOWARD MINISTRY	11 March 1996 to 21 October 1998
(lv)	HOWARD MINISTRY	21 October 1998

Source: Department of the Parliamentary Library.



## 2.4 SECOND HOWARD MINISTRY—At September 1999

CABINET MINISTERS	
Prime Minister	The Hon. John Winston Howard, MP
Minister for Transport and Regional Services and Deputy Prime Minister	The Hon. John Duncan Anderson, MP
Minister for Foreign Affairs	The Hon. Alexander John Gosse Downer, MP
Treasurer	The Hon. Peter Howard Costello, MP
Minister for Trade	The Hon. Mark Anthony James Vaile, MP
Minister for the Environment and Heritage and Leader of the Government in the Senate	Senator the Hon. Robert Murray Hill
Minister for Communications, Information Technology and the Arts, and Deputy Leader of the Government in the Senate	Senator the Hon. Richard Kenneth Robert Alston
Minister for Employment, Workplace Relations and Small Business, and Leader of the House	The Hon. Peter Keaston Reith, MP
Minister for Family and Community Services and Minister Assisting the Prime Minister for the Status of Women	Senator the Hon. Jocelyn Margaret Newman
Minister for Defence	The Hon. John Colinton Moore, MP
Minister for Health and Aged Care	The Hon. Dr Michael Richard Lewis Wooldridge, MP
Minister for Finance and Administration	The Hon. John Joseph Fahey, MP
Minister for Education, Training and Youth Affairs, Vice-President of the Executive Council and Minister Assisting the Prime Minister for the Public Service	The Hon. Dr David Alistair Kemp, MP
Minister for Industry, Science and Resources	The Hon. Nicholas Hugh Minchin, MP
Attorney-General	The Hon. Daryl Robert Williams, AM, QC, MP
Minister for Agriculture, Fisheries and Forestry	The Hon. Warren Errol Truss, MP
Minister for Immigration and Multicultural Affairs and Minister Assisting the Prime Minister for Reconciliation	The Hon. Philip Maxwell Ruddock, MP
OUTER MINISTRY	
Minister for Aboriginal and Torres Strait Islander Affairs	Senator the Hon. John Joseph Herron
Minister for Forestry and Conservation, and Minister Assisting the Prime Minister	Mr Charles Wilson Tuckey, MP
Assistant Treasurer	Senator the Hon. Rod Kemp
Minister for Financial Services and Regulation	Mr Joseph Benedict Hockey, MP
Minister for Regional Services, Territories and Local Government	Senator the Hon. Ian Douglas Macdonald
Minister for the Arts and the Centenary of Federation, and Deputy Leader of the House	The Hon. Peter John McGauran, MP
Minister for Employment Services	The Hon. Anthony John Abbott, MP
Minister for Community Services	The Hon. Lawrence James Anthony, MP
Minister Assisting the Minister for Defence, and Minister for Veterans' Affairs	The Hon. Bruce Craig Scott, MP
Minister for Aged Care	The Hon. Bronwyn Kathleen Bishop, MP
Special Minister of State	Senator the Hon. Christopher Martin Ellison
Minister for Sport and Tourism and Minister Assisting the Prime Minister for the Sydney 2000 Games	Miss Jacqueline Marie Kelly, MP
Minister for Justice and Customs	Senator the Hon. Amanda Eloise Vanstone
Parliamentary Secretary (Cabinet) to the Prime Minister	Senator William Heffernan
Parliamentary Secretary to the Minister for Trade	Senator the Hon. Ronald Leslie Doyle Boswell
Parliamentary Secretary to the Minister for Foreign Affairs	The Hon. Kathryn Jean Sullivan, MP
Parliamentary Secretary to the Minister for the Environment and Heritage	Mrs Sharman Nancy Stone, MP
Parliamentary Secretary to the Minister for Communications, Information Technology and the Arts, and Manager of Government Business in the Senate	Senator the Hon. Ian Gordon Campbell
Parliamentary Secretary to the Minister for Defence	Senator Eric Abetz
Parliamentary Secretary to the Minister for Health and Aged Care	Senator the Hon. Grant Ernest John Tambling
Parliamentary Secretary to the Minister for Finance and Administration	Mr Peter Neil Slipper, MP
Parliamentary Secretary to the Minister for Education, Training and Youth Affairs	The Hon. Patricia Mary Worth, MP
Parliamentary Secretary to the Minister for Industry, Science and Resources	Mr Warren George Entsch, MP
Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry	Senator the Hon. Judith Mary Troeth
Parliamentary Secretary to the Minister for Immigration and Multicultural Affairs	Senator Kay Christine Lesley Patterson

Source: Department of the Parliamentary Library.



Leader of the Opposition

The Hon. K.C. Beazley, MP (Australian Labor Party) is the leader of the Opposition.

State of the parties in the Commonwealth Parliament

The state of the parties in the Commonwealth Parliament at September 1999 is set out in table 2.5.

2.5 STATE OF THE PARTIES, Commonwealth Parliament—At September 1999	
	no.
House of Representatives	
Australian Labor Party	67
Liberal Party	64
National Party	16
Independent	1
Senate	
Australian Labor Party	29
Liberal Party	31
Australian Democrats	9
National Party	3
Country Liberal Party	1
The Greens	1
One Nation	1
Independent	1

Source: Department of the Parliamentary Library.

Numbers and salaries of Commonwealth Government Ministers

Under sections 65 and 66, respectively, of the Australian Constitution the number of Ministers of State was not to exceed seven, and the annual sum payable for their salaries was not to exceed £12,000, each provision to operate until the Parliament otherwise provides.

Subsequently, the number of Ministers and their salaries have increased from time to time. As at October 1998, the number of Ministers was 28 and ministerial salaries ranged from \$123,309 for the Prime Minister, to \$80,009 for the Deputy Prime Minister, \$65,209 for the Treasurer and for the Leader of the Government in the Senate, \$57,869 for the Leader of the House, \$53,919 for a Minister in the Cabinet and \$43,136 for Ministers not in the Cabinet. Where more than one office is held only one ministerial salary is payable, that being the higher salary.

All amounts shown above are in addition to the parliamentary salaries and allowances shown in the next section.

Parliamentary salaries and allowances

The basic salary payable to a Senator or Member of the House of Representatives was \$81,856 at August 1998. In addition, Senators or Members receive an electoral allowance of \$26,467 in the case of a Senator or a Member representing an electorate of less than 2,000 square kilometres, \$31,473 in the case of a Member representing an electorate of 2,000 square kilometres or more but less than 5,000 square kilometres, or \$38,380 in the case of a Member representing an electorate of 5,000 square kilometres or more.

Parliament and elections Commonwealth Parliament

Qualifications for membership and for franchise

Any Australian citizen, 18 or over who is, or is qualified to become, an elector of the Commonwealth Parliament is qualified for membership of either house of the Commonwealth Parliament.

Any Australian citizen (or British subject who was on the Commonwealth Roll as at 25 January 1984) over 18 is qualified to enrol and vote at federal elections. Residence in a subdivision for a period of one month before enrolment is necessary to enable a qualified person to enrol. Enrolment and voting are compulsory for all eligible persons.

The principal reasons for disqualification of persons otherwise eligible for election as members of either Commonwealth House are: membership of the other House; allegiance to a foreign power; being attainted of treason; being convicted and under sentence for any offence punishable by imprisonment for one year or longer; being an undischarged bankrupt or insolvent; holding an office of profit under the Crown (with certain exceptions); or having a pecuniary interest in any agreement with the public service of the Commonwealth except as a member of an incorporated company of more than 25 persons.

Persons convicted of treason and not pardoned, or convicted and under sentence for any offence punishable by imprisonment for five years or longer, or of unsound mind, or persons who are holders of temporary entry permits under the *Migration Act 1958* or who are prohibited non-citizens under that Act, are excluded from enrolment and voting.

## Representation and elections

From the establishment of the Commonwealth of Australia until 1949 the Senate consisted of 36 members, six being returned by each of the original federating States. The Australian Constitution empowers the Commonwealth Parliament to increase or decrease the size of the Parliament. As the population of Australia had more than doubled since its inception, the Parliament passed the *Representation Act 1948*. This Act provided that there should be ten Senators from each State instead of six, thus increasing the total to 60 Senators, enlarging both Houses of Parliament and providing a representation ratio nearer to the proportion which existed at Federation. The *Representation Act 1983* further provided for 12 Senators for each State from the first meeting of the thirty-fourth Parliament.

The *Senate (Representation of Territories) Act 1973* made provision for two Senators to be elected from both the Northern Territory and the Australian Capital Territory. Elections for the Territory Senators are held at the same time as general elections for the House of Representatives.

In accordance with the Constitution, the total number of State Members of the House of Representatives must be as nearly as practicable twice the total number of State Senators. Consequent upon the increase in the size of the Senate in 1949, the number of State Members was increased from 74 to 121. In 1955, there were 122 State Members; in 1969, 123; in 1974, 124; in 1977, 121; in 1980, 122. From the first meeting of the thirty-fourth Parliament, there was a further increase of 23 to 145 State Members flowing from the increase in the number of State Senators to 72.

Since the redistribution of electorates in 1949 giving effect to the increase in the size of the House of Representatives, further redistributions have taken place in 1955, 1968, 1974 (Western Australia only), 1977, 1979 (Western Australia only), 1984, when the size of the Parliament was increased again, 1988–89 (Victoria and Western Australia only), 1991 (New South Wales, Queensland, South Australia, Tasmania and the Australian Capital Territory), 1994 (Victoria, Queensland and the Australian Capital Territory), 1997 (Queensland, Western Australia and the Australian Capital Territory) and 1999 (New South Wales, South Australia and Tasmania).

Redistributions must be held whenever the representation entitlement of a State changes, when more than one-third of the electorates in a State deviate from the quota by more than 10% for more than two months, or every seven years. The quota (or average number) of electors is the basis for electoral distribution. There may be a deviation from the quota of up to 10% in order to achieve equality of enrolment midway between redistributions. In determining boundaries, Redistribution Committees take account of economic, social and regional interests, means of communication and travel, the trend of population changes, physical features and area, and the existing boundaries of electoral divisions.

The Electoral Commissioner determines the representation entitlements of the States and Territories during the tenth month after the first meeting of a new House of Representatives. Determinations are based on the latest population statistics as provided by the Australian Statistician. The quota is ascertained by dividing the number of people of the Commonwealth by twice the number of Senators representing the States. The population of the Territories and all Senators representing the Territories are excluded from calculation when determining the quota. The population of each State and Territory is then divided by the quota to determine their representation entitlements. If there is a remaining fraction of over half a quota, the State or Territory is entitled to an additional seat. This accounts for the minor fluctuations in the size of the House of Representatives. The representation entitlements of the States and Territories at the most recent determinations are shown in table 2.6, which also shows the total size of the Parliament. Under section 24 of the Constitution, Tasmania remains entitled to the five seats guaranteed to any original State in 1901.

From 1922 to 1968, the Northern Territory was represented in a limited capacity by one member in the House of Representatives. In May 1968, the *Northern Territory Representation Act 1922* was amended to give full voting rights to the Member for the Northern Territory effective from 15 May 1968, the day on which the Act received Royal assent.

First preference votes cast for the major political parties in each State and Territory at the 1998 election for each House of the Commonwealth Parliament, and the numbers of electors enrolled, are shown in tables 2.7 and 2.8 respectively.

## 2.6 REPRESENTATION ENTITLEMENTS, States and Territories

State/Territory	1981	1984	1988	1991	1994	1997
New South Wales	43	51	51	50	50	50
Victoria	33	39	38	38	37	37
Queensland	19	24	24	25	26	27
South Australia	11	13	13	12	12	12
Western Australia	11	13	14	14	14	14
Tasmania	5	5	5	5	5	5
Northern Territory	1	1	1	1	1	1
Australian Capital Territory	2	2	2	2	3	2
<b>Total Parliament</b>	<b>125</b>	<b>148</b>	<b>148</b>	<b>147</b>	<b>148</b>	<b>148</b>

Source: Department of the Parliamentary Library.

## 2.7 COMMONWEALTH PARLIAMENTARY ELECTIONS, Votes Recorded—3 October 1998

HOUSE OF REPRESENTATIVES					
	NSW(a)	Vic.	Qld	SA	
First preference votes					
Australian Labor Party	1 457 580	1 261 288	719 739	319 267	
Liberal Party	1 131 545	1 053 990	615 153	389 382	
National Party	293 126	77 385	199 186	4 796	
Country Liberal Party	—	—	—	—	
Pauline Hanson's One Nation	322 044	105 810	285 999	90 773	
Australian Democrats	148 889	171 082	80 005	93 905	
The Greens	92 682	59 383	47 443	4 576	
Unity—Say No to Hanson	57 666	29 265	—	—	
Christian Democratic Party	36 225	3 793	11 243	3 521	
Others	106 164	80 687	34 622	19 771	
Formal votes	3 645 921	2 842 683	1 993 390	925 991	
Informal votes	151 512	103 534	68 644	44 074	
<i>Total votes recorded</i>	<i>3 797 433</i>	<i>2 946 217</i>	<i>2 062 034</i>	<i>970 065</i>	
	WA	Tas.	NT	ACT	Aust.
First preference votes					
Australian Labor Party	377 538	150 384	38 469	98 588	4 422 853
Liberal Party	397 820	117 377	—	59 424	3 764 691
National Party	13 594	—	—	—	588 087
Country Liberal Party	—	—	36 014	—	36 014
Pauline Hanson's One Nation	96 708	7 553	7 401	9 895	926 183
Australian Democrats	41 364	10 024	4 658	14 394	564 321
The Greens	52 674	17 091	2 753	8 145	284 747
Unity—Say No to Hanson	321	—	—	—	87 252
Christian Democratic Party	8 335	—	—	—	63 117
Others	54 395	5 048	1 642	4 237	306 566
Formal votes	1 042 749	307 477	90 937	194 683	11 043 831
Informal votes	45 501	9 819	3 951	5 743	432 778
<i>Total votes recorded</i>	<i>1 088 250</i>	<i>317 296</i>	<i>94 888</i>	<i>200 426</i>	<i>11 476 609</i>

...continued

**2.7 COMMONWEALTH PARLIAMENTARY ELECTIONS, Votes Recorded—3 October 1998—continued**

SENATE					
	NSW(a)	Vic.	Qld	SA	
First preference votes					
Australian Labor Party	1 452 560	1 153 100	654 623	303 299	
Liberal-National Party	1 375 563	1 076 844	—	—	
Liberal Party	—	—	570 692	383 637	
National Party	—	—	190 662	4 445	
Country Liberal Party	—	—	—	—	
Pauline Hanson's One Nation	361 009	117 048	297 245	91 910	
Australian Democrats	275 910	279 806	156 451	117 619	
The Greens	81 612	70 872	42 264	20 895	
Christian Democratic Party	58 079	13 881	28 826	9 598	
Unity—Say No to Hanson	61 607	20 603	9 487	—	
Senator Harradine Group	—	—	—	—	
Others	89 385	111 006	53 460	15 413	
Formal vote	3 755 725	2 843 160	2 003 710	946 816	
Informal votes	128 608	111 686	62 754	27 424	
<i>Total votes recorded</i>	3 884 333	2 954 846	2 066 464	974 240	
	WA	Tas.	NT	ACT	Aust.
First preference votes					
Australian Labor Party	368 878	128 377	38 259	83 867	4 182 963
Liberal-National Party	—	—	—	—	2 452 407
Liberal Party	408 748	104 268	—	61 385	1 528 730
National Party	13 429	—	—	—	208 536
Country Liberal Party	—	—	36 063	—	36 063
Pauline Hanson's One Nation	110 294	11 655	8 657	9 621	1 007 439
Australian Democrats	68 095	12 107	5 119	32 833	947 940
The Greens	61 063	17 905	4 232	6 385	305 228
Christian Democratic Party	10 264	945	—	—	121 593
Unity—Say No to Hanson	2 271	—	—	—	93 968
Senator Harradine Group	—	24 254	—	—	24 254
Other	21 036	8 866	672	2 944	302 782
Formal votes	1 064 978	308 377	93 002	197 035	11 211 903
Informal votes	29 354	9 704	1 901	3 952	375 383
<i>Total votes recorded</i>	1 093 432	318 081	94 903	200 987	11 587 286

(a) Excludes results in the electoral division of Newcastle.

Source: Department of the Parliamentary Library.

**2.8 COMMONWEALTH PARLIAMENTARY ELECTIONS, Electors Enrolled—3 October 1998**

State/Territory	no.
New South Wales	4 031 749
Victoria	3 056 887
Queensland	2 177 556
South Australia	1 006 398
Western Australia	1 140 845
Tasmania	329 751
Northern Territory	104 755
Australian Capital Territory	208 684
Australia	12 056 625

Source: Department of the Parliamentary Library.

From 1948 to 1967, the Australian Capital Territory was represented in a limited capacity by one member in the House of Representatives. The Member for the Australian Capital Territory was granted full voting rights on 21 February 1967.

Following the passing of the *Australian Capital Territory Representation (House of Representatives) Act 1973*, the Australian Capital Territory was divided into two electoral divisions.

Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years. At elections for Senators, the whole State constitutes the electorate. For the purpose of elections for the House of Representatives, the State is divided into single electorates corresponding in number to the number of members to which the State is entitled.

In 1948, amendments to the *Commonwealth Electoral Act 1918* changed the system of scrutiny and counting of votes in Senate elections from the alternative vote to that of proportional representation. The method of voting for both the Senate and the House of Representatives is preferential.

Particulars of voting at Senate elections and elections for the House of Representatives up to 1996 appear in earlier issues of *Year Book Australia*. Full details are contained in the Election Statistics issued by the Electoral Commissioner following each election.

## Referendums

In accordance with Section 128 of the Constitution, any proposed law for the alteration of the Constitution, in addition to being passed by an absolute majority of each House of Parliament, (except in circumstances specified in Section 128 of the Constitution which permits a referendum to proceed if passed by only one chamber), must be submitted to a referendum of the electors in each State and Territory, and must be approved by a majority of the electors in a majority of the States and by a majority of all the voters who voted, before it can be presented for Royal assent.

Since 1901, 44 proposals have been submitted to referendums. The consent of the electors has been received in eight cases: the first in relation to the election of Senators in 1906, the second (1910) and third (1928) in respect of State Debts, the fourth in respect of Social Services in 1946 and the fifth in respect of Aboriginal people in 1967. The remaining three proposals, in relation respectively to Senate casual vacancies, maximum retirement age for justices of the High Court and judges of other Federal Courts, and the right of electors in the Territories to vote in referendums for the alteration of the Constitution, were approved in May 1977. In addition to referendums for alterations of the Constitution, other Commonwealth referendums have been held—two prior to Federation regarding the proposed Constitution and two regarding military service during World War I. A national song poll was held on 21 May 1977. Voting was preferential and, after the distribution of preferences, 'Advance Australia Fair' became the national song of Australia.

For further details of referendums see *Year Book Australia*, 1966, pages 66–68, *Year Book Australia*, 1974, pages 90–91, *Year Book Australia*, 1977–78, pages 72–73, and *Year Book Australia*, 1986, pages 55–56.

## The States and Territories

This section contains summarised information in tables 2.9, 2.10 and 2.11. Readers wanting greater detail should refer to the State Year Books or Territory in Focus publications.

### 2.9 GOVERNMENT LEADER, States and Territories—October 1999

State/Territory	Government Leader
New South Wales	The Hon. R. J. Carr, MP (ALP)
Victoria	The Hon. S.P. Bracks, MP (ALP)
Queensland	The Hon. P. Beattie, MLA (ALP)
South Australia	The Hon. J.W. Olsen, MP (LP)
Western Australia	The Hon. R. Court, MLA (LP)
Tasmania	The Hon. J.A. Bacon, MHA (LP)
Northern Territory	The Hon. D.G. Burke, MLA (CLP)
Australian Capital Territory	The Hon. K. Carnell, MLA (LP)

Source: Department of the Parliamentary Library.

### 2.10 OPPOSITION LEADERS, States and Territories—October 1999

State/Territory	Opposition Leader
New South Wales	K.A. Chikarovski, MP (LP)
Victoria	The Hon. D. Napthine, MP (LP)
Queensland	The Hon. R.E. Borbidge, MLA (NP)
South Australia	The Hon. M. Rann, MP (ALP)
Western Australia	G.I.D. Gallop, MP (ALP)
Tasmania	The Hon. S.D. Napier, MHA (LP)
Northern Territory	S.J. Stirling, HLA (ALP)
Australian Capital Territory	J. Stanhope MLA (ALP)

Source: Department of the Parliamentary Library.

### 2.11 STATE OF THE PARTIES, States and Territories—October 1999

	no. of seats
NEW SOUTH WALES	
Legislative Assembly	
Australian Labor Party	55
Liberal Party	20
National Party of Australia	13
Independent	5
Legislative Council	
Australian Labor Party	16
Liberal Party	9
National Party of Australia	4
The Greens	2
Australian Democrats	1
One Nation	1
Others	9
VICTORIA	
Legislative Assembly	
Australian Labor Party	42
Liberal Party	36
National Party of Australia	7
Independent	3
Legislative Council	
Australian Labor Party	14
Liberal Party	24
National Party of Australia	6

...continued

### 2.11 STATE OF THE PARTIES, States and Territories—October 1999—continued

	no. of seats
<b>QUEENSLAND</b>	
Legislative Assembly	
Australian Labor Party	45
National Party of Australia	23
Pauline Hanson's One Nation	9
Liberal Party	5
Independent	7
<b>SOUTH AUSTRALIA</b>	
House of Assembly	
Australian Labor Party	21
Liberal Party	23
National Party of Australia	1
Independent	2
Legislative Council	
Australian Labor Party	7
Liberal Party	10
Australian Democrats	3
Independent	2
<b>WESTERN AUSTRALIA</b>	
Legislative Assembly	
Australian Labor Party	19
Liberal Party	29
National Party of Australia	6
Independent	3
Legislative Council	
Australian Labor Party	12
Liberal Party	14
National Party of Australia	3
Australian Democrats	2
The Greens	3
<b>TASMANIA</b>	
House of Assembly	
Australian Labor Party	14
Liberal Party	16
Tasmanian Greens	4
Independent	1
Legislative Council	
Australian Labor Party	3
Liberal Party	1
Independent	11
<b>NORTHERN TERRITORY</b>	
Legislative Assembly	
Australian Labor Party	7
Country Liberal Party	18
<b>AUSTRALIAN CAPITAL TERRITORY</b>	
Legislative Assembly	
Australian Labor Party	6
Liberal Party	6
ACT Greens	1
Independent	4

Source: Department of the Parliamentary Library.

## Acts of the Parliaments

In the Commonwealth Parliament all laws are enacted in the name of the Sovereign, the Senate, and the House of Representatives. The subjects with respect to which the Commonwealth Parliament is empowered to make laws are enumerated in the Australian Constitution.

In all States other than South Australia and Tasmania, laws are enacted in the name of the Sovereign by and with the consent of the Legislative Council (except in Queensland) and Legislative Assembly. In South Australia and Tasmania laws are enacted in the name of the Governor of the State, with the advice and consent of the Parliament in the case of South Australia, and of the Legislative Council and House of Assembly in the case of Tasmania. Generally, assent to bills passed by the Legislatures is given by the Governor-General or State Governor acting on behalf of, and in the name of, the Sovereign. In certain special cases bills are reserved for Royal assent. The Parliaments of the States are empowered generally, subject to the Australian Constitution, to make laws in and for their respective States in all cases. The power of the States to make laws was enhanced in 1986 by the enactment by the Commonwealth Parliament of the *Australia Act 1986* and the accompanying *Australia (Request and Consent) Act 1986*. Subject to certain limitations they may alter, repeal or vary their Constitutions. Where a law of a State is inconsistent with a law of the Commonwealth Parliament, the latter law prevails and the former law is, to the extent of the inconsistency, invalid.

## Enactment of legislation by the Commonwealth Parliament

The legislation passed by the Commonwealth Parliament between 1901 and 1973, and which was then still in operation, was published in a consolidated form entitled *Acts of the Parliament 1901–73*. Since 1974, annual volumes of Acts have also been published. The consolidation contains a chronological table of Acts passed from 1901 to 1973, showing how they are affected by subsequent legislation or lapse of time, together with a table of legislation of the Commonwealth Parliament passed between 1901 and 1973 in relation to the several provisions of the Australian Constitution. Reference should be made to these for complete information.

In 1998, the number of enactments of the Commonwealth Parliament was 135.



## National Anthem and colours of Australia

His Excellency, the Governor-General of the Commonwealth of Australia, issued the following Proclamation on 19 April 1984:

I, SIR NINIAN MARTIN STEPHEN,  
Governor-General of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, hereby declare:

(a) that the anthem 'God Save The Queen' shall henceforth be known as the Royal Anthem and be used in the presence of Her Majesty The Queen or a member of the Royal Family;

(b) that the National Anthem shall consist of the tune known as 'Advance Australia Fair' with the following words:

*Australians all let us rejoice,  
For we are young and free,  
We've golden soil and wealth for toil;  
Our home is girt by sea;  
Our land abounds in nature's gifts  
Of beauty rich and rare,  
In history's page, let every stage  
Advance Australia Fair.*

*In joyful strains then let us sing,  
Advance Australia Fair.*

*Beneath our radiant Southern Cross  
We'll toil with hearts and hands;  
To make this Commonwealth of ours  
Renowned of all the lands;  
For those who've come across the seas  
We've boundless plains to share;  
With courage let us all combine  
To Advance Australia Fair.  
In joyful strains then let us sing,  
Advance Australia Fair.*

(c) that the Vice-Regal Salute to be used in the presence of His Excellency the Governor-General shall consist of the first four bars and the last four bars of the tune known as Advance Australia Fair;

(d) that the National Anthem shall be used on all official and ceremonial occasions, other than occasions on which either the Royal Anthem or the Vice-Regal Salute is used; and

(e) that green and gold (Pantone Matching System numbers 116C and 348C as used for printing on paper) shall be the national colours of Australia for use on all occasions on which such colours are customarily used.

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## Internet sites

AusInfo, <http://www.ausinfo.gov.au>

Australian Electoral Commission, <http://www.aec.gov.au>

Parliament of Australia, <http://www.apb.gov.au>

—Hansard, <http://www.apb.gov.au/hansard>

—Parliamentary Education Office, <http://www.peo.gov.au>

—Parliamentary Library, <http://www.apb.gov.au/library>





# 3

# International relations

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## Introduction

Australia's international relations are driven by its core national interests—the security of the Australian nation and the economic wellbeing of the Australian people. Important elements of Australia's international relations are the priority accorded to the Asia Pacific, and especially to the countries of East Asia, the forging of close relationships with the United States, Japan, Indonesia and China, the commitment to further international trade liberalisation, and strong support for the World Trade Organisation (WTO) and Asia Pacific Economic Co-operation (APEC). Australia has global interests which require broad international engagement, and the priority Australia attaches to its relationships with the countries of the Asia Pacific does not diminish the important interests Australia must pursue in the Americas, Europe and elsewhere.

In addition to maintaining and developing strong bilateral relationships, Australia's international interests are advanced through participation in regional or global institutions and forums. For example, the negotiation of multilateral trade agreements enhances access to foreign markets for Australian products. Australia also has a strong national interest in helping to guard against the spread of nuclear weapons, especially in the Asia Pacific region. It has therefore been active globally and regionally in support of the development of, and adherence to, international non-proliferation and disarmament regimes.

The Australian belief in a 'fair go' is also reflected in the pursuit of foreign and trade policy objectives. Human rights are an inseparable part of our efforts overseas. Not only do they reflect the community values of most Australians, but their general observance helps create the kind of international environment that will advance Australia's general foreign and trade policy agenda.

Our international relations are also shaped by economic globalisation and the revolution in international communications. Globalisation offers opportunities for internationally competitive economies, but also brings challenges for political and economic management. It has profound implications for trade and economic policy. It blurs the division between foreign and domestic policy, increases competitive pressures in markets, and makes globally-based trade rules and disciplines even

more important. But while globalisation reduces the effective room for manoeuvre of national governments in some policy areas, law-making is still the prerogative of national governments, and it will be many years, if at all, before the nation state is replaced as the primary force in international relations.

Our relationship with Asia is one which has a profound influence on Australian foreign and trade policy. And while there has been slowing of economic growth in 1998 and 1999, the countries of East Asia are still expected to continue to grow in importance to Australia as trade and investment partners. Australia's engagement with the countries of Asia is extensive and has been gathering pace for many decades. This is for a number of reasons. What happens in our own region will affect us more deeply and more quickly than events that occur in most other areas of the world. Australia has substantial trade and economic interests at stake in the region. Even with the onset of the East Asian economic crisis, East Asia takes more than 50% of all our exports, and even more is transported through the region to markets elsewhere in the world. Australia continues to seek closer engagement with Asia because of the profound benefits which flow from our relations with countries of the region and the realisation of our mutual interests. The region contributes to our own prosperity and security and, just as importantly, we contribute to the prosperity and security of Asia.

The East Asian economic crisis was a defining moment for Australia's relationship with Asia, and by putting Australia at the forefront of international efforts to overcome the economic and social impacts of the crisis, we were able to underscore that the ties we had built are deep and lasting.

Australia's relationship with the United States is one of four key bilateral relationships in which our major strategic, political, defence and commercial interests are engaged. Australia and the United States have forged a strong partnership founded on shared strategic interests. The United States has a strong strategic engagement in East Asia, where it has vital security and economic interests. The relationships between the United States, Japan and China will remain key determinants of regional stability. The growth in economic and political influence of others in East Asia, notably the Republic of Korea and Indonesia, also affects the dynamics of regional security.

Japan occupies a vital strategic position in North East Asia and continues to play a primary economic and political role in our immediate region. Australia works hard to encourage close dialogue with Japan on a wide range of economic, political and strategic issues and the development, to the extent possible, of policies which are mutually reinforcing. Japan continues to be Australia's major trading partner, accounting for some 16% by value of our total trade (exports plus imports) in 1998–99. It is a significant investor in Australia, and is the major source of in-bound tourism.

Australia's relationship with China will also grow in importance in the years ahead. China's economy has made impressive achievements to date and survived the East Asian economic crisis in reasonably good shape. How China manages its economic growth and pursues its international objectives, and how other nations, particularly the United States and Japan, respond to China, will be particularly important. The visit to Australia by Chinese President Jiang Zemin in September 1999 represented an important milestone in Australia's relations with China.

The political and economic changes Indonesia is undergoing at the time of writing, with a particular focus on East Timor, have the capacity to affect Australian interests. The lead-up to, and the outcome of, the presidential elections will set the tone for future political stability and economic development.

## Security interests

Australia's national security and its economic interests are inextricably linked to the security and stability of a broad region which encompasses South East Asia, the South West Pacific and Eastern Indian Ocean. It also includes North East Asia, because the security of South East Asia cannot be separated from the rest of East Asia and because of the direct consequences of instability in North East Asia for Australia's wellbeing. Any threat to the security of East Asia—from tensions to the extreme of war—would have immediate and adverse effects on Australia's national security and our major export markets. The potential for developments in the Asia Pacific to affect Australia's security and economic interests is the basis for the high priority that Australia places on ensuring regional stability. Of particular concern was the missile test conducted by the Democratic Peoples Republic

of Korea (DPRK) in August 1998—a provocative action which has increased tensions in the North Asian region.

The key components of Australia's security strategy are maintaining a strong national defence capability, the security alliance with the United States, developing bilateral defence and security relationships with the countries throughout the Asia Pacific, and strengthening multilateral security links in the region, especially the Association of South East Asian Nations (ASEAN) Regional Forum (ARF).

Regular bilateral security dialogues with countries in the Asia Pacific, and with key partners beyond the region, provide an opportunity to share views on a wide range of regional and global security issues, promote transparency and reinforce Australia's commitment to working cooperatively with regional countries on security issues. Australia has increased the number of countries with which it has such dialogues, as part of its long-term strategy of promoting shared security perceptions in the Asia Pacific region.

The ARF is an important step towards creating a sense of strategic community in a region where there is little history of inclusive multilateral approaches to security or defence. It complements the central role of bilateral links in dealing with global and regional security issues, and has an important role in encouraging regional support for international regimes against the proliferation of weapons of mass destruction and their missile delivery systems.

Australia is working in the ARF to develop norms of regional behaviour aimed at avoiding conflict and settling disputes. Australia is encouraging the ARF to take a more central role in discussing and managing issues that threaten stability or confidence, and is taking an active role in expanding the ARF's confidence-building agenda and moves to develop its capacity for preventive diplomacy.

Global issues can also have significant security implications for Australia. The risk of global conflict has diminished considerably with the end of the Cold War, but other potential threats remain. Developments in Europe, the Middle East and South Asia have the potential to disrupt global security. Serious instability in other parts of Asia, such as continuing tensions between India and Pakistan, could have implications for the security of the Asia Pacific.

Australia has made a major contribution to the significant progress in establishing international regimes to prevent the proliferation of nuclear, chemical and biological weapons and of missiles. Australia's future efforts will be concentrated on ensuring that these regimes are implemented and remain effective and, where necessary, are strengthened, especially in light of the security challenge presented by South Asian nuclear testing and the missile launch in August 1998. Considerable effort is being devoted to initiatives to bolster the international legal regime against biological weapons. Australia will continue to encourage adherence to the international regime banning the use, stockpiling, production and transfer of anti-personnel landmines. These efforts will continue to be complemented by Australia's commitment to practical measures such as landmine clearance, victim assistance and mine clearance technology programs.

## Economic interests

Australia's economic wellbeing and growth depend on a competitive domestic economy and access to foreign markets. Trade policy, industry policy and micro-economic reform go hand in hand to provide Australian business with the competitive foundations and opportunities to thrive in an increasingly globalised marketplace.

As with Australia's security interests, Australia's economic interests are most closely engaged in the Asia Pacific region. In 1998–99, 52% of Australia's merchandise exports went to East Asian countries and 71% to APEC members, the destination also for over half of Australia's foreign direct investment. Although the East Asian economic crisis has resulted in slower economic growth for the region over the past two years, East Asian markets are, and will remain, important for Australia.

While the East Asian economic crisis has had a negative impact on Australia's export growth to the region, continuing strong domestic demand, and the ability of exporters to diversify to other markets, have prevented more serious repercussions for Australia. Overall, the Australian economy has proved resilient to the regional crisis, with GDP growth remaining among the highest of Organisation for Economic Co-operation and Development (OECD) countries. Australia's total exports of goods and services, however, fell in 1998–99 by 2% to \$112b. The fall in exports reflected the downturn in regional demand, continuing low commodity prices and appreciation in the Australian dollar since the beginning of 1999.

Australia has provided assistance—both technical and financial—to affected economies, including through contributions to the three International Monetary Fund (IMF) packages, and influencing the views and approaches of other OECD countries and international financial institutions in addressing problems of specific countries in the region. Australia's response to the East Asian economic crisis has further underscored its position in the region and it is therefore well placed to take advantage of opportunities as the region recovers.

Australian trade policy combines an integrated set of bilateral, regional and multilateral efforts aimed at achieving the best possible market access outcomes for Australian business and advancing Australia's commercial interests. To this extent, Australia's trade strategies focus on reducing barriers to Australian goods, services and investment in foreign markets, developing those markets, and promoting Australia as a supplier of goods, services and investment.

The pre-eminent regional and multilateral forums are APEC and the WTO. Other practical steps, such as developing closer links between Australia's economic relations agreement with New Zealand (Closer Economic Relations or CER) and the ASEAN Free Trade Area, are also being pursued. Over coming years, a number of challenges will require Australia to refine its trade strategy. Accession of new members to the WTO and APEC may alter these organisations' internal dynamics. Regional agreements could further fragment the global trading system. The international trade agenda will become more complex as domestic regulatory regimes and rules affecting investment are the subject of international discussions and as pressure rises to include issues such as labour standards, the environment and competition policy in international trade negotiations.

Significant as the Asia Pacific is for Australian business, Australia's trading interests are global, as therefore are its trade policy and market development activities. The WTO is of particular significance to Australia because it is the major forum for global trade liberalisation and, through its rules and disciplines, provides a predictable and more transparent environment for business, and a means of resolving trade disputes. Australia is, and will continue to be, an active player in the WTO, including as an advocate for continued global market opening and as the leader of the Cairns Group of agricultural fair traders.

A key objective for Australia in 1999 was seeking international agreement to the launch of a further multilateral trade round in the WTO. The WTO is now expected to launch these negotiations at its next Ministerial Conference, in Seattle in November–December 1999.

In the longer term, Australia's objectives in the WTO are to ensure that the system remains relevant to the needs of Australian business by extending the rules and disciplines to new areas of importance; to focus the WTO work program on key market access issues; to seek to make world trade in agriculture free from distortion by subsidies and domestic support; and to increase access for Australia's exports of agricultural products.

The strong Asia Pacific orientation of Australia's trade and the importance of liberalising and facilitating trade in the region help to make APEC the most significant regional forum in which Australia participates. APEC economies committed themselves, in the Declaration by Leaders in Bogor in 1994, to free and open trade and investment by 2010 for industrialised economies and by 2020 for developing economies. Australia remains committed to this goal, the implementation of which, if met, would bring considerable long-term benefits for Australia and the region.

Australia's priorities for APEC in 1999 include: supporting the launch of broad-based negotiations at the Seattle WTO Ministerial Conference at the end of the year; promoting structural and regulatory reform in the APEC region, particularly in those economies affected by the Asian economic crisis; and advocating practical projects to streamline procedures in APEC economies relating to cross border trade. Australia is also working in the short and medium term to ensure substantial progress in the liberalisation programs of individual APEC economies, primarily by improving Individual Action Plans (which record progress towards the Bogor goals) on an annual basis.

Attention to financial sector issues has been given added impetus as economies undertake reform and restructuring following the East Asian economic crisis. There has also been increased recognition of the importance of direct business participation in APEC activities. This not only helps ensure that APEC is tackling the most important impediments to trade, investment and economic growth in the region, but can be a

powerful force in encouraging APEC economies to push ahead with difficult reform decisions.

APEC's contribution, however, goes beyond trade and investment, and economic and technical cooperation issues. It is the only regional forum which brings together leaders from across the Asia Pacific. These meetings contribute to habits of consultation and dialogue, and the development of personal relationships, which strengthen trust and confidence among regional countries.

## **National values**

The values which Australia brings to its international relations are the values of a liberal democracy. These have been shaped by national experience and given vigour through cultural diversity, but reflect a predominantly Western intellectual and cultural heritage. They include the rule of law, freedom of the press, the accountability of the government to an elected parliament, and a commitment to a 'fair go'.

Australia's values strengthen its international relations. They enable Australia both to sustain traditional links to Europe and North America and to forge stronger ones with Asia.

A fundamental and non-negotiable tenet of Australia's national values is an unqualified commitment to racial equality and the elimination of racial discrimination. This is reflected in the country's ethnic diversity, and is a guiding principle of its international behaviour.

Human rights are an inseparable part of Australia's approach to international relations, both because the treatment of human beings is a matter of concern to Australians, and because promoting and protecting human rights underpins Australia's broader security and economic interests.

The objective of Australia's human rights policy is to make a difference on human rights, not to posture. Priority is given to practical efforts that can directly improve the human rights situation on the ground. These include development cooperation programs, assisting in establishing national human rights institutions, encouraging bilateral, regional and multilateral discussion of human rights issues, and working to develop and strengthen the effectiveness of regional and international human rights institutions and instruments.



In mid-1998, Australia established a Centre for Democratic Institutions at the Australian National University in Canberra, with the mission “to harness the best of Australia’s democratic experience in support of developing countries’ needs for good governance”. The Centre’s core business is to design and deliver short, intensive, high-level training programs in support of the democratic process and the strengthening of civil society.

## Australia’s assets

In its international relations, Australia uses its assets—economic, strategic and cultural—as well as an international reputation as a responsible, constructive and practical country. Australia’s history shows that, on issues of importance to it, Australia can exert considerable influence if it sets out to do so.

Australia is a significant economy, bigger in absolute size than all those in the Asia Pacific region except the United States, Canada, Japan, and China. It is among the world’s most important commodity exporters, and a crucial supplier of industrial raw materials, energy and food.

Australia has a strong skills base, high quality education and training institutions, advanced physical infrastructure, and adoption and usage rates for information technology which are among the highest in the world. Australia has strong civil institutions which underpin a free society and encourage free enterprise. Australia’s cultural diversity gives Australian society a vigour and capacity to adapt rapidly to new opportunities. It is also a rich source of language and other skills which are a significant advantage in doing business in a global economy.

Australia’s defence capability is significant in regional terms. Australia has a broadly based alliance relationship with the United States, whose strategic engagement and commitment underwrite the stability of East Asia. Australia also shares a close and expanding partnership with Japan, the most powerful economy in East Asia.

This is not to suggest that Australia can afford to be complacent about its future. Over the coming years, Australia will face a much more competitive trading and investment environment, a changing strategic environment, increased competition in East Asian and other markets, continuing international resistance to further trade liberalisation, and internal uncertainties in some key regional countries.

## Australia’s bilateral relationships

As a nation with global interests, Australia deals with countries in many regions. Each relationship engages Australian interests in different ways. Each is significant, and Australia does not seek to ascribe a strict hierarchy of importance to them.

This is not to suggest that the interests Australia pursues with each country are equally important, or that Australia devotes equal resources to each of them. The countries which most substantially engage Australia’s interests are those which are influential in their own right in shaping Australia’s strategic environment, as well as being significant trading and investment partners. Foremost among these are the three major powers and largest economies of the Asia Pacific region—the United States, Japan and China—and Australia’s largest neighbour, Indonesia. Significant Australian interests are also engaged in Australia’s relationships with the Republic of Korea, the other ASEAN states and, in the South Pacific, New Zealand and Papua New Guinea.

## United States

Australia shares a relationship with the United States based on a strong commitment to democracy, security and an open trading system. The relationship complements and reinforces Australia’s practical commitment to the Asia Pacific, as well as strengthening the engagement of the United States in the region, an engagement which has assumed great importance as the Asia Pacific undergoes historic change.

These shared strategic interests and values are underpinned by the dynamic trade and investment links between Australia and the United States. The United States is Australia’s second largest trading partner and largest source of investment, as well as a key regional and global partner in achieving more open markets through APEC and the WTO. People-to-people ties, including educational and cultural links, are extensive and wide-ranging, with over 600,000 business visitors and tourists travelling between Australia and the United States each year. Australia’s security alliance with the United States is a central component of Australia’s defence and continues to provide Australia with beneficial access to technology, military equipment and intelligence.



## Japan

Australia and Japan enjoy a significant and wide-ranging relationship. The bilateral economic relationship is by far Australia's most substantial and successful, but shared interests extend into many other areas. Despite the current difficulties of the Japanese economy, Japan remains Australia's largest export market by a considerable margin—the value of merchandise exports to Japan is more than double the value of those to the next largest market (\$16.6b as compared to \$8.0b to the United States in 1998–99). While there are still good prospects for expansion in areas such as food, telecommunications, and housing and construction, Australia's overall exports to Japan are expected to decline through 1999 despite some stabilisation of the Japanese economy. Australian exports to Japan declined by 10% in the first six months of 1999, with a slightly lower decline of 6% overall for the 1998–99 financial year.

Japan is also an important source of merchandise imports (\$13.6b in 1998–99) and investment (third largest investor as at June 1998). Australia also has growing people-to-people links, evident in the number of Australians studying Japanese, increasing exchanges, and the healthy level of tourism. Japan is Australia's largest source of overseas visitors, totalling 751,100 arrivals in 1998—about 18% of Australia's inbound market.

Australia's partnership with Japan reflects the broad alignment of Australian and Japanese strategic, political and economic interests in the Asia Pacific region. Agreement to hold annual Prime Ministerial Summits was reached in April 1997, and a Partnership Agenda was endorsed at the 14th Australia Japan Ministerial Committee meeting in August 1997. Like Australia, Japan supports the long-term strategic engagement of the United States in the Asia Pacific region and recognises the fundamental contribution that it makes to regional stability. Japan also shares our interest in advancing APEC as the primary vehicle for economic cooperation in the Asia Pacific region.

## China

China's importance to Australia will continue to grow in line with China's continued economic, political and strategic engagement with the Asia Pacific region and the global economy. China was the eleventh largest trading nation in the world in 1998, at a time when many of its major trading partners in Asia were deeply affected by the East Asian economic crisis. China, like Australia, has also made an important contribution to regional economic recovery through its participation in

IMF assistance packages to Thailand and Indonesia.

China's relations with the countries of the Asia Pacific region are also critically important to the maintenance of regional peace and security. In particular, China's relations with Japan and the United States play a vital role in shaping the security context for the entire region. It is in Australia's best interests to actively encourage and support Chinese participation in dialogue and cooperation on regional security issues.

The trade and investment relationship between Australia and China continues to expand. China is Australia's fifth largest merchandise trade partner and seventh largest export market. China's entry into the WTO will open up new opportunities for Australia by encouraging China to further integrate into the global economy and abide by the rules and conventions regulating international trade.

Mutual economic and trade interests are increasingly underpinned by the strengthening of broader bilateral ties including cultural, educational, scientific and people-to-people links. With different cultures and traditions, Australia and China do not always share the same view, but regular dialogue and government-to-government exchanges have been established on a range of issues—from human rights to security issues—in a bid to discuss differences of opinion. The one-China policy will continue to be a fundamental element of the bilateral relationship within which Australia pursues important economic and trade interests with Taiwan.

## Indonesia

Despite its ups and downs, Australia and Indonesia share an important and broad-based relationship. It is significant to Australia because of Indonesia's geographic proximity, its strategic location astride Australia's northern approaches, its size—over 200 million people—and its central role in ASEAN. Indonesia has been one of the countries most affected by the economic crisis. Its economy shrank by 14% in 1998 and inflation soared to more than 70%. The crisis had an immediate effect on our trade with Indonesia. From a situation where our exports grew by 29% in 1995–96 and 22% in 1996–97, our exports fell by 17% in 1997–98 and 20% in 1998–99. Australia was quick to pledge US\$1b to Indonesia's IMF recovery package. Australia also provided export credit insurance to assist trade, and boosted our aid to Indonesia by over one-third in 1997–98.

Politically the key development in 1999 was the holding of historic general elections on 7 June 1999,

which was followed by the Presidential election on 20 October 1999. The successful Indonesian elections and incipient signs of economic stabilisation suggest that the worst might be behind Indonesia and that a more stable political and economic situation is now in prospect.

Indonesia agreed with Portugal in May 1999 to allow a UN-run consultation which would give the East Timorese the right to choose, autonomy or to reject it, leading to separation from Indonesia. The Australian Prime Minister in December 1998 had suggested to the Government of Indonesia that the East Timorese be allowed to exercise their right of self-determination after a substantial period of transition. Australia supported the process agreed to by Indonesia and Portugal for the resolution of the East Timor issue, including by providing over \$20m towards the UN Trust Fund and contributing civilian police and other personnel to the UN Assistance Mission in East Timor (UNAMET). The UN-organised ballot held on 30 August 1999 resulted in a decisive vote for independence. Violence broke out shortly after, and Australia, at the request of the UN Secretary General, led a multinational force, INTERFET, to East Timor to stabilise the situation. The Indonesia People's Consultative Assembly voted in October to allow East Timor to separate from Indonesia. Authority was subsequently transferred to the UN.

The events in East Timor and Australia's leadership of INTERFET led to some strains in the bilateral relationship with Indonesia. A significant development was Indonesia's decision to abrogate the Australia–Indonesia Agreement on Maintaining Security. Both sides have indicated a desire to stabilise and develop the relationship, most aspects of which have remained in place, despite strong rhetoric in the media and elsewhere.

### Canada and Latin America

Australia and Canada enjoy a productive and broadly based relationship, with cooperation on a range of international issues. Promotion of the commercial relationship—Canada is Australia's sixteenth largest trade and twelfth largest investment partner—is a major focus of attention. In relation to Latin America, our efforts are focused on facilitating the expansion of Australia's trade and investment relations. The size and diversity of the markets in the region offer significant opportunities for Australian exporters and investors. As well as supporting the efforts of individual Australian businesses, the Government seeks to strengthen the framework created by mechanisms such as the CER–Mercosur (the Southern Cone Common Market of South America) dialogue and the

Australia–Chile Bilateral Trade and Investment Commission—both of which held meetings in late 1998—and pursue specific bilateral agreements. Australia also enjoys increasingly productive relations with Latin American countries on a range of international political issues.

### The Republic of Korea

The Republic of Korea is one of Australia's most important regional partners, reflecting our complementary economic structures, shared middle-power status and common interests in the Asia Pacific region. Although exports to Korea have suffered as a result of Korea's economic crisis, Korea remains Australia's third largest export market and fourth largest trading partner, with exports in 1998 amounting to \$6.1b. Korea is now undertaking an ambitious economic restructuring plan which, if fully implemented, should underpin a return to sustainable medium-term growth—building on the already impressive upturn in the first half of 1999. Australia's commitment to Korea was underscored by the Government's pledge of \$US1b in December 1997 to the IMF Assistance package and trade finance assistance through the Export Finance Insurance Corporation (EFIC).

### Association of South East Asian Nations (ASEAN)

ASEAN is the key regional political institution in South East Asia and has been instrumental in promoting regional political harmony for 32 years. Australia values greatly its close relationship with ASEAN as a grouping, and with its members states (Brunei Darussalam, Burma, Cambodia—which joined the Association on 30 April 1999—Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand and Viet Nam). Australia's relations with ASEAN cover trade (exports in 1998–99 were \$10.4b, or about 12% of total Australian exports) and investment, as well as cooperation in the technical, cultural, defence and educational fields. Australian exports to ASEAN fell significantly as a result of the economic crisis, but there were signs early in 1999 of some strengthening in export trends. In responding to the crisis, and more recently to early signs of economic improvement, ASEAN restated its commitment to trade liberalisation and to continuing economic reform.

### Europe

Australia has close ties with many of the countries of Europe, not least because a majority of our population can trace their ancestry back to European origins. We share important social, cultural, historical and political experiences.

Europe is a leading participant in key fora such as the Group of Eight (G8), the OECD and the WTO. As one of the key economic centres of the world, Europe is vital to Australia's trading interests, and is our largest economic partner. Europe as a single market is the largest foreign investor in Australia (with the United Kingdom being the largest country investor), and it is Australia's second largest destination for outward investment. Australian exports to Europe in the year ending 30 June 1999 were \$13b. Total two-way trade increased by 5.4% over the previous year. Australia and Europe both support the launch of a new round of multilateral trade negotiations under the WTO.

Closer integration and enlargement of the European Union and moves to the next stage of economic and monetary union are changing the face of Europe. Several countries in central and eastern Europe are keen to join the EU, NATO and other European Institutions. Membership would result in major changes in the development of these countries, and an enhancement of Australia's bilateral economic and political relations with them. The response to the conflict in Kosovo in 1999 reflected a growing determination among the countries of Europe to strengthen regional security and stamp out ethnic violence. Russia's involvement in resolving the conflict has helped to further consolidate European security. However, Russia's continuing economic and internal political problems, including its difficulties in implementing market reforms, will continue to be felt across Europe and on global markets.

### **The Indian Ocean region**

Australia's bilateral relations with India and Pakistan, affected by these countries' nuclear testing programs in May 1998, improved markedly in 1999. Positive movement (and expressions of positive intent) from both India and Pakistan to meet the demands of the international community, in relation to disarmament and building confidence, led to a relaxation of the Australian Government's suspension on Ministerial visits between the two countries. This permitted the staging of a successful visit to India by the then Deputy Prime Minister and Minister for Trade, Tim Fischer, in February 1999. India and Australia also worked together in a range of international forums, including the Indian Ocean Rim-Association for Regional Co-operation (IOR-ARC).

The commercial relationship with India, in particular, continued to strengthen and diversify, with exports to India in 1998-99 reaching \$1.9b. Elsewhere in South Asia, bilateral commercial relationships continued to grow. Most notably, exports to Bangladesh have shown consistent and strong growth and reached \$288m in 1998-99. Despite the economic malaise besetting the Pakistani economy, Australian exports have held up well, and Australia maintained its position as one of the top three investors in the Sri Lankan economy.

### **The Middle East and Africa**

Australia has significant and expanding commercial interests in the Middle East, with prospects of developing both trade and investment links. While building on its traditional commodity exports (wheat, livestock), Australia is also broadening the base of its trade into services (motor vehicles, education, infrastructure development). In 1998, exports to the Gulf States were \$3.2b, up 11.9% on 1997. Australian exports to the Gulf States are now approaching our total exports to Britain and China, and are greater than those to Germany and France combined. The forecast over the next five years is for annual growth of around 10% in Australian exports to the region. In addition, Australia remains interested in political and strategic developments in the region.

Australia's most significant relationship in Africa is with South Africa. This is a growing market for Australia's commercial interests, and provides a base for trade with all the countries of the Southern African Development Community.

### **The South Pacific**

The South Pacific is an area of significant strategic interest for Australia, and Australia's relations with countries in the region are of abiding importance.

A shared background and experience, and a multi-faceted relationship, incline Australia naturally towards a unique partnership with New Zealand. New Zealand is an ally and Australia's fourth-largest export market, and our first for exports of elaborately transformed manufactures (e.g. motor vehicles, office machinery, computers and machinery for manufacturing). The successful pursuit of many Australian international interests is advanced by maintaining a mutually supportive relationship with a New Zealand which is economically strong, bilaterally and internationally engaged, and capable of playing a credible role in regional security.

Australia has a long-standing, close relationship with Papua New Guinea (PNG). PNG's location gives it an enduring strategic importance to Australia. Pursuing a constructive and productive bilateral relationship is a high priority for Australia, and we are playing a major role in the Bougainville peace process. Australia is a major supplier to and investor in PNG. Australia supports a process of sustainable economic development in PNG, aimed at enhanced self-reliance within the context of a functional and democratic state. Australia looks forward to supporting PNG's new Prime Minister (Sir Mekere Morauta, elected on 14 July 1999) in economic reforms and improved governance (see the section *Country programs*).

Australia's relations with the other states of the Pacific islands region are important. As part of the neighbourhood, these states have close historical, political, economic, aid, and community ties with Australia. Australia's international standing, especially in East Asia and in North America and Europe, is influenced by perceptions of how well Australia fulfils a leadership role in the islands region. Australia plays a significant role in trade and investment in the South Pacific and supports regional trade liberalisation. Through a wide-ranging aid program valued at more than \$130m per year, Australia assists island countries with economic reform, institutional strengthening, and improvements to the health and education sectors (see the section *Country programs*).

## The United Nations (UN) system

Australia pursues important national interests in the bodies that comprise the UN system. These interests are engaged primarily in the General Assembly and its committees as well as specialised agencies like the World Health Organization (WHO), and affiliated organisations such as the International Atomic Energy Agency.

The UN is important to Australia in the core areas of international security and disarmament, environment, human rights and development assistance. Australia plays a strong role in these and other UN areas such as agriculture, refugees, health and meteorology. Australia has also been

active in ensuring the acceptance of arms control treaties, such as the Comprehensive Test Ban Treaty, by the UN General Assembly, and in international environmental negotiations. The emphasis in the latter is on working towards international action which contributes to sustainable development, while protecting Australia's national interests.

An ongoing priority for Australia is the reform of the UN so that it can effectively manage growing demands with static or declining real resources. One element of the reform program is improved efficiency and effectiveness; the UN must undergo the fiscal discipline and adjustment to which many governments have already been subject. Another element is the need to reexamine the current group system within the UN so that it better reflects the interests of all members.

## Role of the Department of Foreign Affairs and Trade in Australia's international relations

The Department of Foreign Affairs and Trade (DFAT) is the principal source of advice to the Government on foreign and trade policy issues and is the agency primarily responsible for implementing the Government's foreign and trade policies. Its aim is "to advance the interests of Australia and Australians internationally".

Its goals are to:

- enhance Australia's security;
- promote Australia's economic growth, jobs and standard of living;
- help Australian travellers and Australians overseas;
- strengthen global cooperation in ways which advance Australia's interests;
- promote public understanding of Australia's foreign and trade policy; and
- provide clients with highly professional, efficient and effective services.

## Who are DFAT staff?

The Department employs just over 2,000 staff, around one-quarter of whom are serving overseas. (Separately, Australia's diplomatic missions abroad employ a total of around 1,550 local staff.) The number of Australia-based staff employed by the Department has declined by 498 over the past three years, representing an 18% decrease in the number of staff in Australia and a 23% decrease in the number of staff posted overseas. The combined Department of Foreign Affairs and Trade is now smaller than the former Department of Foreign Affairs prior to the amalgamation with the Department of Trade in 1987.

DFAT recruits graduates and others with potential to serve in a variety of roles. There is no discrete 'foreign service' within the Department; most staff are generalists who can be deployed overseas into what are described broadly as either foreign and trade policy-related positions or consular, financial administration and management roles. DFAT recruits strategically at the graduate entry and other levels to ensure that the Department has the right blend of skills to meet its needs in Canberra, State and Territory capitals and overseas.

People come to DFAT with a range of qualities and experiences. Around 44% of staff are female, and over 20% describe themselves as being from culturally or linguistically diverse backgrounds. There are 25 Indigenous officers, several of whom are representing Australia overseas. Over one-fifth of staff (excluding those engaged locally overseas) maintain a high

proficiency in at least one language other than English. Slightly less than half of these speak Asian, Middle Eastern or Pacific languages, though this proportion is increasing relative to those with skills in continental European languages.

Regarding formal qualifications, DFAT rarely stipulates a need for a particular degree or language specialisation. For example, the minimum requirement for graduate recruits is a three year degree in any discipline. DFAT principally looks for people with the right blend of analytical abilities, management and communication skills, and with the personal qualities to make them good team-players who can adapt to a range of different work challenges and environments.

As a measure of the diversity of DFAT's recruits, the 1999 graduate intake of 33 officers included 19 women and 14 men, within an age range 22–36. Most had degrees in law and/or economics, but several had degrees majoring in areas such as mathematics, architecture, archaeology and psychology. Nine had postgraduate qualifications and more than half hold two degrees. Languages represented in the group include Danish, French, German, Greek, Indonesian, Italian, Japanese, Korean, Malay, Mandarin, Marathi, Russian, Spanish, Tamil, Turkish and Vietnamese.

This sample is not unusual, and represents the increasing diversity of the Department's workforce—something it will continue to foster in order to respond flexibly and creatively to the challenges of the new century.

## Consular and passport services

Consular and passport services are important areas of work for DFAT. The Australian Government has an obligation under international law to assist, and protect where necessary, the interests of Australians overseas. This assistance is provided overseas by Australian missions abroad and by consular officers in Australia. In 1998–99, the Department provided consular assistance to over 20,000 Australians

overseas, including assisting them and their next-of-kin in situations where an arrest, death, or the need for repatriation had occurred. DFAT's posts and offices in Australia also performed nearly 40,000 notarial acts (witnessing a signature on a document), and issued over one million passports. Australia is a world leader in providing secure passport services, and the Department is committed to working closely with the private sector to take advantage of technological developments to improve the quality of Australian passports.



Consular and passport operations are areas of increasing work as more Australians travel and live overseas. The number travelling has almost doubled in the last ten years, a trend which continues. Some 3.1 million Australians travelled overseas in 1998–99 compared with 2.6 million the previous year. Over 800,000 Australian citizens also work and live abroad, and this number too is likely to grow as a globalising economy facilitates the movement of skills and expertise.

The Department regards it as a fundamental duty to help Australians in need of consular assistance, and has improved the range and quality of its consular services, which are now available from some 143 points of contact worldwide. This includes the enlargement of Australia's network of overseas posts and honorary consuls through the further development of cooperative arrangements with other countries, notably Canada. A Consular Response Group is now in place to manage very complex cases, and the introduction of a 24-hour Consular Operations Centre in Canberra has made it much easier for travelling Australians and their families in Australia to gain prompt access to consular advice. The Department's public promotion of its consular services is leading to wider knowledge and appreciation of those services among the travelling public.

### Working with the public

The Department's interaction with the Australian community is continuing to expand beyond its daily contact on consular and passport services. This reflects the increased range of trade, economic, environmental and social issues dealt with internationally and the greater interest in international negotiations on the part of non-government organisations (NGOs) and Australian business.

The Foreign Affairs Council was established in December 1997 to enable the Government, in developing foreign policy, to draw on the expertise and views of a range of eminent Australians working in business, academia and the media. The Council continues to meet three times a year, with the most recent meeting held in July 1999.

The Trade Policy Advisory Council (TPAC) is the Government's peak consultative mechanism on trade developments and priorities. It is also the Minister for Trade's peak advisory body on trade policy matters. TPAC meets four times a year, and currently there are 24 appointed members drawn from a wide range of interests and expertise, including exporters, business consultants, bankers and academics, and five ex-officio members.

The Department coordinates regular meetings with NGOs and business on a range of international issues including the environment, human rights and disarmament. One example is the treaty-making process which the Australian Government reformed in 1996 to ensure greater consultation with the community during the negotiation of treaties and prior to any final action being taken.

### Australia's overseas aid program

Advancing Australia's national interest by assisting developing countries to reduce poverty and achieve sustainable development is the objective of the Australian Government's aid program. In doing so, Australia's aid program plays a vital role in meeting the challenge of development and improving the lives of millions of people overseas, many of whom are our near neighbours.

The majority of Australia's aid program is administered by the Australian Agency for International Development (AusAID). Assistance through AusAID takes two main forms: Country Programs (i.e. direct bilateral assistance to partner countries) and assistance through Global Programs. Global Programs include humanitarian and emergency assistance, contributions to multilateral development banks and international organisations, support for Australian non-government organisations, and funding for public information and development research.

Official development assistance (ODA) in 1998–99<sup>1</sup> is estimated to total \$1.48b† (including minor adjustments for AusAID's Fringe Benefit Tax and miscellaneous revenue). This was \$20m† greater than the projected budget estimate, as a result of Australia's contribution to the United Nations-led Consultation process in East Timor.

In 1998–99<sup>1</sup>, Country Program assistance totalled an estimated \$856.6m† and Global Programs \$465.8m†. Other expenditure included the costs of administering the aid program, known as running costs (\$63.9m† in 1998–99).

In 1999–2000, Australia's ODA will total approximately \$1.5b†, an increase of \$22m† over the 1998–99 budget figure. Australia's ODA/GNP ratio for 1999–2000 is expected to be 0.25%, which is above the latest (1998) published average of all donor countries, 0.23%. Country Program expenditure is estimated to be \$843.2m in 1999–2000 and Global Programs is estimated at \$244.1m. The total cash flow to Global Programs is estimated at \$466.9m†. The recipients of Australian aid flows are set out in table 3.1.

Although AUSAID administers most of Australia's development cooperation, other government agencies also contribute to overall ODA expenditure. For example, funding for the Australian Centre for International Agricultural Research, is expected to be \$43.2m in 1999–2000. As well, in 1998–99, \$57.8m† was spent by other government agencies on ODA-related activities. In 1999–2000 this figure is estimated to be \$58.6m†.

### 3.1 TOTAL AUSTRALIAN AID FLOWS, By Recipient Country/Region(a)—1999–2000(b)

Region/Country	\$m
Papua New Guinea	328.9
<b>Pacific</b>	
Fiji	21.6
Vanuatu	17.7
Solomon Islands	17.1
Samoa	14.5
Tonga	13
Kiribati	9.4
Nauru	3.3
Tuvalu	3.3
Other and regional	37.1
<i>Total Pacific</i>	136.9
<b>East Asia</b>	
Indonesia	121.1
Viet Nam	72.4
Philippines	61.8
China	55.5
Cambodia	36.8
Thailand	26.3
Laos PDR	20.8
Malaysia	3.4
Other and regional	23.2
<i>Total East Asia</i>	421.4
<b>Other regions</b>	
Bangladesh	36.3
India	18.7
Sri Lanka	11.1
Pakistan	4.3
Africa	75.4
Other and regional	31.8
<i>Total other regions</i>	177.6
World unallocated	441.4
<b>Total Australian aid flow</b>	<b>1506.2</b>

(a) Country totals include country and regional programs as well as humanitarian and NGO and volunteer programs expenditure. (b) On a cash basis.

Source: AusAID.

1 All 1998–99 figures are given in cash terms. However, due to implementation of the Australian Government-initiated change to accrual budgeting in 1999, there is a break in series between 1998–99 and 1999–2000. The 1999–2000 figures are mostly in accrual terms, whereby an expense is recorded when the liability is incurred, rather than when cash is paid. Exceptions include the total Australian ODA figure for 1999–2000, and total cash flows which are identified by †.

With the break in series from 1998–99 to 1999–2000, the difference in most cases is minimal. For example, the published expenses figure for most country programs in 1999–2000 is around 0.5% different from the cash estimate. However, large differences occur in cases such as multi-year liabilities. With accrual accounting, the full value of multi-year liabilities, such as annual payments to the World Bank, is recorded as an expense at the time of commitment, not when the cash is paid out. As a result, PNG's expense allocation is less than it would be on a cash basis, due to Budget Support (\$35.5m) not being counted as an expense in 1999–2000. It was recorded as an expense in a previous year, when the commitment was entered into. To give a more accurate picture of Australia's aid contribution to PNG, Budget Support is added to expenses (\$280.4m) and Estimated Other Flows to reach a total of \$328.9m.

## Country programs

More than 60% (approximately \$843.2m in 1999–2000) of Australia's overseas development assistance is provided on a country or regional program basis, focusing primarily on Papua New Guinea, the Pacific and East Asia. Development needs are also addressed selectively in South Asia, and Africa.

Individual country and regional programs are based on three-year strategy documents, which articulate how the program will facilitate poverty reduction and promote sustainable development. Strategies relate the specific elements of AusAID's programs to the broader developmental needs of the country or region. They also take into account Australia's resources, skills and experience in delivering aid, as well as the development priorities of the partner government.

The five priority sectors for Australia's aid program are health, education, infrastructure, agriculture and rural development, and governance, with gender issues and the environment as major crosscutting concerns. Within this framework, development assistance programs comprise a range of activities. These include the provision of Australian goods and services, training and academic student scholarships, and food aid.

For the majority of partner countries, the nature of Australia's assistance is reviewed annually against the background of individual country strategies, usually during high level consultations with partner governments. By continually reviewing its assistance, Australia is able to adjust the aid program to respond to changing development needs. For example, a major theme of this year's aid budget is continuing to help developing countries in our region to the impact of the current East Asian financial crisis. Additional support to individual countries and regions is provided through a range of international organisations and community programs (see the section *Global programs*).

## Papua New Guinea

PNG receives the largest share of the Australian aid program, with total flows in 1999–2000 estimated to reach \$328.9m†, including country program assistance of \$264.9m. This represents over one-fifth of the total Australian development cooperation program, reflecting the significance of the relationship between the two countries and PNG's formidable development challenges and needs.

The PNG Program has undergone radical change in the past decade as untied budget support has been replaced progressively with jointly programmed aid. This process will be completed by July 2000. The current review of the Treaty on Development Cooperation is a step in the charting of a new course for the aid program post-2000.

Australia's assistance to PNG will maintain its focus on the jointly agreed priority sectors of education and training, and health and infrastructure, as well as the implementation of projects in the renewable resources, governance, public sector management, private sector development, and law and justice sectors. A special program of assistance for Bougainville will continue.

## South Pacific

The Pacific Island Countries (PICs) continue to be a high priority for the aid program.

These small, vulnerable and isolated countries face unique constraints on their development. With relatively small domestic economies and resource bases, many PICs have subsistence-based economies and most rely on the public sector as the major contributor to the cash economy. Many PICs are remote from markets and have few exports.

Australia's Pacific Islands Development Strategy 1999–2001 sets out five principal outcomes for Pacific island countries that the aid program will work towards: better governance; sustained growth; greater capacity; better service delivery; and environmental integrity.

In 1999–2000, total Australian aid to the PICs will total an estimated \$136.9m†, making Australia one of the largest donors to the region. In addition to supporting economic and policy reform, the focus of assistance continues to be health, education, renewable resources and private sector development.



## East Asia

The East Asia region is one in which many countries, until recently, experienced rapid and sustained economic growth. Some countries nevertheless remain among the poorest in the world. The region's recent financial crisis presents extensive development challenges to even the better-placed countries, with effects of the crisis likely to persist for a number of years. The crisis has highlighted the need for an increased focus on governance in the region. Australia's program to East Asia is estimated to total \$421.4m† in 1999–2000, including bilateral country program assistance of \$337.9m, and has a particular focus on governance and economic activities.

Assistance to Viet Nam, Cambodia and Laos PDR, three of the world's poorest nations, concentrates on poverty reduction through targeted interventions in areas such as health, education and training, rural development and construction of basic infrastructure.

In Indonesia, Australian assistance supports health (including water supply), the environment, rural development, education and governance activities. The financial crisis currently facing Indonesia is the most severe in the Asian region. It is estimated that, as a result, up to 40 million people are now living in absolute poverty. Australian assistance is aimed at supporting the social safety net, strengthening civil and economic governance and promoting sustainable recovery and development. Assistance is also being provided to East Timor.

Australia's development assistance program to the Philippines focuses on reducing poverty in the southern part of the country, especially Mindanao, which contains approximately 30% of the Philippines poor. Australia is also supporting the recently established peace process in Mindanao where there has been conflict for over two decades.

The program includes assistance in the areas of rural incomes, health, education and the environment. Support for the Philippines Government's economic reform agenda is provided through the Philippines Australia Governance Facility and the Vulnerable Groups Facility.

Thailand is another of the East Asian countries severely affected economically and socially by the financial crisis. Australia's aid program to Thailand had been due to cease in 2000–01. However, it will now continue beyond that time. A major new

focus is on addressing the problems in the banking and finance system, promotion of economic governance and mitigation of the negative effects of the financial crisis, especially on the poor and disadvantaged. In addition, new student scholarships for study in Australia will be provided along with continued support for health (HIV/AIDS) and education projects.

China continues to face major development challenges, with over 200 million people living in poverty. China has embarked on an ambitious program of government restructuring, rationalisation of state-owned enterprises and financial sector reform. Australia plans to support this program through technical advice and training. At the same time, the aid program will assist efforts to reform education, improve the basic health of the rural poor and improve environmental and natural resource management and rural development. Human rights will also be a focus of the program.

## South Asia

In spite of financial turmoil in East Asia, South Asia has generally managed to continue to grow, although at a slower rate. Notwithstanding this growth, development in the region is impeded, exacerbated by high population growth, which is having a significant impact on natural resources. South Asia still remains one of the poorest regions, with 40% of the people living below the poverty line. In 1999–2000, total assistance to South Asia is estimated at \$82.4m†, including country program assistance of \$54m.

Australia's aid program to the region focuses on five priority areas: institutional strengthening to deliver more effective basic education and health including reducing the spread of HIV/AIDS, the provision of water/sanitation services, supporting activities that build peace and uphold human rights, and assistance aimed at improving natural resource management in selected areas.

## Africa

Africa continues to face major development challenges, but improved economic performance and governance in a number of countries have increased hope for a turnaround in the poor development performance over recent decades. A policy framework for Australian aid to Africa for 1999–2002 has been established. The geographic focus of bilateral aid to the region centres on South Africa and Mozambique, with more limited activities in Zimbabwe and east African countries. Regional programs have been increased substantially.

Australia's aid program will include food security and delivering activities, HIV/AIDS prevention and the provision of postgraduate scholarships for study in Australia will continue to be priorities. As well, significant funding will be provided to NGOs to implement water and sanitation activities in Southern African communities.

## Global programs

### Multilateral organisations

Multilateral development agencies complement Australia's bilateral aid program by extending the reach of Australian aid. They also provide an alternative channel for policy dialogue with recipient governments, and are a key to improved donor coordination. As well, they provide leadership on a range of emerging issues such as climate change and communicable diseases such as HIV/AIDS and tuberculosis. The responses to the East Asian financial crisis illustrate how international organisations are well placed to marshal necessary resources and to coordinate large-scale responses to global development needs, responses to natural disasters, and humanitarian emergencies such as in Kosovo.

Australia supports a range of development banks, United Nations and Commonwealth development agencies and international health and environment agencies as set out in table 3.2.

Australia and other donors have a strong interest in ensuring that multilateral agencies are effective, efficient and adequately resourced. Equitable sharing of burdens among donors is also important.

### 3.2 GLOBAL PROGRAMS(a)—1999–2000(b)

Contribution to multilateral organisation/global program	\$m
<b>Multilateral development banks</b>	
International Development Association (IDA)	118.0
Asian Development Fund (ADF)	106.0
International Fund for Agricultural Development	1.5
<i>Total</i>	225.6
<b>United Nations organisations</b>	
UN Development Programme (UNDP)	6.8
UN Childrens Fund (UNICEF)	4.7
World Food Programme (WFP)	42.5
UN Population Fund (UNFPA)	2.1
International Atomic Energy Agency (IAEA)	1.5
UN Drug Control Program (UNDCP)	0.8
UN Environment Program (UNEP)	0.5
UN Fund for Women (UNIFEM)	0.4
<i>Total</i>	59.3
Emergency and humanitarian programs	104.8
Commonwealth organisations	10.1
International health programs	10.8
International environment programs	10.5
Non government organisations & volunteer programs	42.1
Public information and development education	1.8
Development research and seminar support	2.0
<b>Total global programs</b>	<b>466.9</b>

(a) including core contributions to multilateral organisations.

(b) Estimates, on a cash basis.

Source: AusAID.

### Emergency and humanitarian programs

The scale and nature of humanitarian crises around the world make it impossible for Australia to respond in every deserving case. However, Australia does provide substantial assistance for refugees, internally displaced people and victims of natural and man-made disasters. This year a notable example is East Timor where the Government has already committed \$14m to emergency relief assistance. The Government has budgeted \$104.8m for emergency and humanitarian programs in 1999–2000, but has indicated that additional resources will be provided to cover part of the need for significant humanitarian aid to East Timor.

Australia's emergency and humanitarian assistance is provided in a number of ways. Immediate life-sustaining support in the form of food, water and shelter is provided for refugees and victims of disasters, such as those affected by the drought and tidal wave emergencies in PNG. Assistance is also provided for disaster preparedness programs that aim to strengthen the capacity of local authorities to respond to and prevent emergencies. Particular emphasis is placed on rebuilding livelihoods and infrastructure. Such support, which includes landmine clearance, health and water supply, is vital for the successful repatriation of refugees and in helping to prevent further crises.

In 1999–2000 Australia will also provide assistance to United Nations agencies such as the UN High Commission for Refugees (\$13.9m), the UN Relief and Works Agency (\$2.8m) and the International Committee of the Red Cross (\$1.2m), as well as international and Australian NGOs.

### **Non-government organisation (NGO) activities and volunteer programs**

Development NGOs are an effective vehicle for providing Australian aid to developing countries. NGOs are able to involve the Australian community directly in assisting the poor in developing countries and to implement small scale, community projects with strong grassroots development potential.

The valuable work of NGOs relies heavily on the strong networks of members and volunteers. Their capacity to deliver effective aid is also reliant on continued contributions from the public and the Australian Government. Total Australian Government development assistance channelled through both Australian and overseas NGOs in 1999–2000 will be approximately \$105.4m†. This includes \$24.3m for the AusAID NGO Cooperation Program.

The Australian Youth Ambassadors for Development Program, initiated in 1998–99, will continue at a cost of \$4.6m in 1999–2000.

In addition, the aid program also contributes to programs administered by the Australian Volunteers International, the Australian Executive Service Program, the Paulian Association of Lay Missionaries and Interserve Australia. Each of these organisations sends a wide range of

volunteers to work in developing countries. Total expenditure on these volunteer programs in 1999–2000 is expected to be \$12.1m.

### **Public information and development education activities**

Australians have a right to know how their support is assisting developing countries. Public information and development education activities play a key role in meeting this obligation.

Outreach seminars disseminate information about the aid program and development issues to a wide range of people in the community. Seminars are also held to inform industry and business groups and potential contractors of opportunities to become involved in the aid program. The school-based Global Education Program is a major component of the Development Education Program. It concentrates on the professional development of teachers and the production of materials to support the teaching of Global Education in primary and secondary schools. A free quarterly magazine and a wide range of publications targeted at both expert and the general Australian audiences are prepared and distributed each year. In addition, AusAID's Internet site provides essential technical, business and general information to a fast increasing Australian and international audience.

Estimated expenditure on public information and development education in 1999–2000 is \$1.8m.

### **Development research and seminar support**

An estimated \$2.0m will be provided in 1999–2000 for development research initiatives and seminar support.

Research into development issues is commissioned from Australian academic research institutions. The aim is to ensure that Australia's aid program accesses relevant, well-focused and high quality research through open competition between research providers. Research findings are disseminated to decision-makers throughout the Asia-Pacific region. In addition, assistance is provided to maintain networks between experts in development studies who augment development research overseas and in Australia. An estimated \$1.3m will be provided for this program.

The International Seminar Support Scheme, estimated at \$0.7m, enables participants from developing countries to attend international seminars that make a direct and practical contribution to development in their countries. The scheme also supports the participation of Australian key speakers at seminars of significant development relevance.

### **Australian Centre for International Research (ACIAR)**

The Australian Centre for International Research (ACIAR) is a statutory body with its own Board, Director and Policy Advisory Council. It promotes research into improving sustainable agricultural production and natural resource management in developing countries. ACIAR commissions research collaboration between Australian and developing country research institutions for the mutual advantage of both countries. The research helps developing countries to help themselves.

The Asian economic downturn, coupled with severe environmental conditions facing Australia's northern neighbouring countries, has underlined the importance of ACIAR's role and research activities.

As well as commissioning research, ACIAR promotes project-related training and conducts pilot development studies to enhance the application of research results. The Centre is also responsible for Australia's contributions to international agricultural research centres such as the International Rice Research Institute. There are 19 such centres receiving Australian support. Sixteen are members of the Consultative Group on International Agricultural Research within the aegis of the World Bank. The centres provide core

research in agriculture, forest management, fisheries and food policy for international development.

The funding appropriation for ACIAR in 1999–2000 is \$43.2m.

### **Aid management and administration**

AusAID's central office is in Canberra, with State offices in Sydney, Brisbane, Melbourne, Adelaide and Perth.

AusAID is an administratively autonomous agency within the Foreign Affairs and Trade portfolio. The Agency's principal organisational functions are:

- to provide professional policy advice and support to the Government on aid policy, program directions and international development issues; and
- to develop and implement programs of assistance in partnership with partner countries.

AusAID contracts firms and individuals to deliver activities at all stages of the project activity cycle: feasibility design, implementation, review and evaluation.

To oversee the implementation of aid projects in countries, AusAID supports officers in 25 overseas missions, employing a combination of Australian citizens and locally engaged staff.

Funding for aid management and administration in 1999–2000 is estimated at \$63.6m.

## The network of Australian diplomatic and consular missions overseas

DFAT manages an extensive network of Australian diplomatic and consular missions abroad, supporting Australia's international interests and providing consular and passport services. The Department also maintains offices in all of the State capitals and in Darwin.

Listed in tables 3.3 to 3.7 are the locations of Australia's diplomatic and consular network.

### 3.3 AUSTRALIAN EMBASSIES, HIGH COMMISSIONS AND CONSULATES MANAGED BY DFAT(a)

Country	Post
Argentina	Buenos Aires
Austria	Vienna
Bangladesh	Dhaka
Barbados	Bridgetown
Belgium	Brussels
Brazil	Brasilia
Brunei Darussalam	Bandar Seri Begawan
Burma (Myanmar)	Rangoon
Cambodia	Phnom Penh
Canada	Ottawa
Chile	Santiago de Chile
China, Peoples Republic of	Beijing
	Guangzhou
	Hong Kong
	Shanghai
Croatia	Zagreb
Cyprus	Nicosia
Egypt	Cairo
Federated States of Micronesia	Pohnpei
Fiji	Suva
France	Paris
Germany	Berlin
Greece	Athens
Holy See	Holy See
Hungary	Budapest

For footnotes see end of table.

...continued

### 3.3 AUSTRALIAN EMBASSIES, HIGH COMMISSIONS AND CONSULATES MANAGED BY DFAT(a)—continued

Country	Post
India	New Delhi
Indonesia	Bali
	Jakarta
	Dili
Iran	Tehran
Ireland	Dublin
Israel	Tel Aviv
Italy	Rome
Japan	Tokyo
Jordan	Amman
Kenya	Nairobi
Kiribati	Tarawa
Korea	Seoul
Laos	Vientiane
Lebanon	Beirut
Malaysia	Kuala Lumpur
Malta	Malta
Mauritius	Port Louis
Mexico	Mexico City
Nepal	Kathmandu
Netherlands	The Hague
New Caledonia	Noumea
New Zealand	Wellington
Nigeria	Lagos
Pakistan	Islamabad
Papua New Guinea	Port Moresby
Philippines	Manila
Poland	Warsaw
Russia	Moscow
Samoa	Apia
Saudi Arabia	Riyadh
Singapore	Singapore
Solomon Islands	Honiara
South Africa	Pretoria
Spain	Madrid
Sri Lanka	Colombo
Sweden	Stockholm
Switzerland	Geneva
Thailand	Bangkok
Tonga	Nuku'alofa
Turkey	Ankara
United Arab Emirates	Abu Dhabi
United Kingdom	London
United States of America	Honolulu
	New York
	Washington
Vanuatu	Port Vila
Venezuela	Caracas
Viet Nam	Hanoi
	Ho Chi Minh City
Yugoslavia	Belgrade
Zimbabwe	Harare

(a) The list does not include Cape Town (an office of the High Commission in Pretoria), staffed permanently by DFAT officers. The Australian Chamber of Commerce and Industry (ACCI) maintains in Taipei the Australian Commerce and Industry Office (ACIO), the staff of which include officers on leave without pay or seconded from DFAT, Austrade and the Department of Immigration and Multicultural Affairs.

Source: Department of Foreign Affairs and Trade.

**3.4 MULTILATERAL MISSIONS**

	Post
OECD	Paris
UN	Geneva
	New York
	Vienna
WTO	Geneva

Source: Department of Foreign Affairs and Trade.

**3.5 CONSULATES MANAGED BY AUSTRADE**

Country	Post
Brazil	Sao Paulo
Canada	Toronto
Germany	Frankfurt
India	Mumbai
Italy	Milan
Japan	Fukuoka
	Nagoya
	Osaka
	Sapporo
	Sendai
New Zealand	Auckland
Peru	Lima
Romania	Bucharest
South Africa	Johannesburg
Turkey	Istanbul
United Arab Emirates	Dubai
United States of America	Atlanta
	Los Angeles
	San Francisco

Source: Department of Foreign Affairs and Trade.

**3.6 CONSULATES MANAGED BY THE DEPARTMENT OF IMMIGRATION AND MULTICULTURAL AFFAIRS**

Country	Post
United Kingdom	Manchester

Source: Department of Foreign Affairs and Trade.

**3.7 AUSTRALIA'S NETWORK OF HONORARY CONSULS**

Country	Post
Angola	Luanda
Bolivia	La Paz
Brazil	Rio de Janeiro
Bulgaria	Sofia
Canada(a)	Vancouver
Colombia	Bogota
Czech Republic(a)	Prague
Denmark(a)	Copenhagen
Ecuador	Guayaquil
Estonia	Tallinn
Finland	Helsinki
Former Yugoslav Republic of Macedonia	Skopje
French Polynesia	Papeete
Greece	Thessaloniki
Indonesia	Balikpapan
	Kupang
	Medan
Korea, Republic of	Pusan
Latvia	Riga
Lithuania	Vilnius
Malaysia	Kota Kinabalu
	Kuching
	Penang
Mexico	Guadalajara
	Monterrey
Mozambique	Maputo
Norway	Oslo
Pakistan	Karachi
Papua New Guinea	Lae
Russia(a)	Vladivostok
Slovenia	Ljubljana
South Africa	Durban
Spain	Barcelona
	Seville
Thailand	Chiang Mai
Ukraine	Kyiv
United Kingdom, Scotland	Edinburgh
United States of America	Boston
	Denver
Uruguay	Montevideo

(a) Consulates managed by Austrade.

Source: Department of Foreign Affairs and Trade.

## Bibliography

Further information about the Department of Foreign Affairs and Trade can be found in its *Annual Report 1998–99*. This report is available through Government Info shops, the Department's Internet site, or DFAT (Tel: +61 (02) 6261 1111).

For further information on Australia and the process of international treaty-making, readers can obtain *Australia and International Treaty Making: Information Kit: March 1999*, published by DFAT, available from the Treaties Secretariat (Tel: +61 (02) 6261 3521; Fax: +61 (02) 6261 2144), or through the Department's Internet site.

## Internet sites

DFAT's Internet site (<http://www.dfat.gov.au>) contains information about current issues, together with a range of related material, including ministerial speeches, background information on Australia's relations with other countries, positions on international issues, and consular and travel advice.

*In the National Interest: Australia's Foreign and Trade Policy White Paper (1997)* is available on DFAT site at <http://www.dfat.gov.au/ini/wp.html>.

AusAID's Internet site (<http://www.ausaid.gov.au>) contains a range of information, including:

- the latest issues (<http://www.ausaid.gov.au/new.html>),
- country information (<http://www.ausaid.gov.au/country.html>) and
- publications (<http://www.ausaid.gov.au/pubs.html>).

The site also contains the report of the committee of review on the Australian overseas aid program (the Simons Report), at <http://www.ausaid.gov.au/publications/simons.html>.

Austrade's Internet site, Austrade Online, has separate home pages geared to Australian users (<http://www.austrade.gov.au/Australian/>) and international users (<http://www.austrade.gov.au/international/>)

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## Introduction

This chapter outlines Australia's defence policy and presents an overview of the Defence organisation, its functions and how it operates, and the reforms it is undergoing.

## Australia's defence

Australia is faced with a range of political, economic and social challenges. Some of these derive from changes within the Australian community and economy, while many are driven by change within the international strategic, political and economic environments. Australia requires defence and security policies that are responsive to international developments and meet the challenges inherent in its changing strategic environment, and a Defence Force able to fill the roles and complete the tasks required of it by government.

Australia's defence policy seeks to minimise the likelihood that armed force will be used against Australia or its interests. Australia's strategic and defence planning takes account of the complexity and uncertainty of the international situation and seeks to incorporate advantages available through the changing nature of warfare and the increasing pace of technological and industrial change. The maintenance of a well trained and highly motivated Defence Force with the capability to defend Australia's territory and interests from armed aggression is the ultimate resource ensuring the integrity of Australia's territory and interests.

Major components of Australia's strategic and defence planning are the promotion of effective strategic relationships with our regional neighbours, the maintenance of strong alliances, support for the United Nations, and other regional endeavours that promote Australian and global security. Australia's alliances with the United States and New Zealand, and its network of bilateral and multilateral defence relationships throughout the Asia-Pacific region, are among its most important strategic assets. The United States is Australia's most important alliance partner, and the two countries continue to share many common security interests. Australia's relationship with the United States makes a very significant contribution to the quality and development of Australia's defence capabilities through consultation and the interchange of information, training and exercises, and access to equipment, technology and intelligence.

The maintenance of Australia's relationship with the United States will not be at the expense of relationships or activities in our region. Australia's defence policy recognises the importance of continuing to develop regional relationships, and places a high priority on continuing to engage all of our neighbours in constructive and confidence building dialogue, military exchanges and joint exercises.

Australia's objective in regional engagement is to promote security and stability, and to develop the capacity to work closely with regional countries to confront and resolve future security challenges. Over the past 18 months, a number of events have complicated Australia's strategic environment. These include political instability caused by the economic turmoil that has impacted severely throughout Asia, the nuclear tests conducted by India and Pakistan, and the ballistic missile tests conducted by North Korea. The Asian economic crisis has had a substantial impact on the economic and political stability of a number of countries, dented regional self-confidence, and escalated the level of uncertainty in the regional environment. Of immediate concern are the challenges facing Indonesia, and the political, economic and social challenges facing Papua New Guinea and some of Australia's other Pacific neighbours.

In order to manage the changing security environment, the Government looks to the Defence organisation to provide for the security of Australia, its people and its interests. In response, the Defence organisation provides the following:

- combat capability—encompassing the military capabilities which the Defence organisation delivers, and the combat capabilities which it has the capacity to deliver, to achieve specific military and strategic goals which the Government may seek in preventing or defeating armed force against Australia or its interests;
- effective international defence relationships and contributions to international activities—encompassing defence activities which enhance regional and global stability, and Australia's standing in the region, reducing the likelihood of the threat or use of armed force against Australia or its interests;

- effective contribution to national support tasks—encompassing the support provided to the Government and community in non-combat related roles, including civil search and rescue and civil surveillance, using the capabilities developed for the defence of Australia; and
- strategic command and policy—encompassing the contribution of the Defence organisation to the development of government policy on strategic, military and defence issues, and providing the Government with a framework for managing potential conflict without recourse to armed force.

It is the Defence organisation's task to provide government with a wide range of effective options for meeting circumstances as they arise. Within these parameters, Defence's most important responsibility remains the maintenance and development of an effective, combat ready, military capability.

## Defence Reform Program

To meet the imperative to maximise Australia's military capability, the Defence organisation has instituted the Defence Reform Program. The program is an encompassing, long-term agenda for organisational and cultural change across the entire Defence organisation. It is delivering increased resources for direct combat capabilities and contributing to a Defence Force able to undertake military operations effectively, efficiently and successfully. The key outcomes to be delivered by the Defence Reform Program are:

- more resources, personnel and enhanced logistic support for combat units;
- improvements to future capabilities through increased resources for new capital equipment;
- enhanced national support through increased use of the skills and abilities of Australian industry to support the Defence effort;
- improved skills and knowledge by streamlining the provision of education and training; and
- improved management through streamlined processes and improved structures.

The Defence organisation aims to redirect resources from supporting services to combat capabilities, to ensure a modern and effective Defence Force. A substantial market testing and rationalisation program is being implemented in non-combat areas, with resources being redirected from support areas to enhance the Defence Force's capability and preparedness. In 1999–2000, about \$590m of ongoing savings and \$19m of one-off savings will be achieved under the program. Within two years of the start of the Defence Reform Program, nearly one-third of the efficiency targets have been met. For 1999–2000, it is expected that a total of \$474m will become available for reinvestment, increasing to \$675m for 2000–2001.

The Defence organisation needs to develop, support and operate its forces as cost-effectively as possible to maximise Australia's military capabilities. Many support functions can be performed more efficiently by organisations outside Defence. The Defence organisation is increasingly seeking maintenance and other support from industry. Where specialised skills and services are available more cheaply from outside organisations, they will be actively sought. For example, maintenance support for the F-111s and C130s are being market tested. Enhancing national support for Defence capabilities is central to maximising those capabilities now and in the future.

As part of the improvement of the readiness of the ADF and its capacity to respond to current needs, 1 Brigade in Darwin has been brought to an increased level of readiness. This will provide the Government with a broader range of options with which to respond to contingencies arising in our region or field of national interest.

## Other activities of the Defence organisation

While maintaining combat capability is the main task of the Defence organisation, numerous other tasks make important contributions to the maintenance of regional security and provide significant aid to the civil community, both in Australia and overseas. In recent years, the Australian Government has sought to improve Australia's regional security through defence cooperation, in the form of individual, expert assistance to neighbouring governments and their defence forces. It is important that Australia develops the capacity to work with regional countries to confront future security challenges.

Regional cooperation also extends to providing assistance in humanitarian operations. The past year has seen the Defence organisation involved in various international tasks, including emergency assistance following the tsunami in Papua New Guinea, drought relief in Irian Jaya and the placement of Kosovar refugees in Australia. Defence has also provided expertise and assistance during emergencies within Australia including the Katherine floods, rescue assistance during the Sydney–Hobart yacht race and assistance to householders following destructive hail storms in Sydney.

Another reflection of Defence's involvement in activities that promote international stability and improve Australia's strategic environment is the longstanding commitment to the United Nations. Since the inception of the United Nations, Australian governments have been at the forefront of involvement in international peacekeeping and security activities.

## Resources

### Summary of the 1999–2000 Defence Budget

Beginning with the 1999–2000 financial year, Defence budgeting is based on a new resource framework involving outcomes, outputs and accrual budgeting. It focuses on what the Defence organisation produces (outputs), what resources Defence administers on the Commonwealth's behalf (administered items), the desired results of outputs and administered items (outcomes) and the full cost of the outcome (accrual measurement).

The Government has committed to maintain Defence funding in real terms for the 1999–2000 Budget and the 2000–2003 Forward Estimates. The estimated total Defence funding is some \$18b (the apparent increase in funding is due to the introduction of accrual-based output budgeting as outlined above). After removing the effect of the capital use charge, the Defence Departmental Appropriations as a share of forecast Gross Domestic Product in 1999–2000 are estimated to be 1.8%, compared to 1.9% for 1998–99.

Table 4.1 shows the total outlays of the Defence organisation in current prices since 1993–94 and budgeted funding for 1999–2000. Table 4.2 breaks down the Defence Budget, in accrual terms, into outputs delivered to Government.

### Expenditure on capital equipment

In 1999–2000, some \$60m is to be spent on new major capital equipment. Newly approved projects include reconnaissance and aerial fire support helicopters, a joint intelligence support system, a joint command support system, a military geographic information capability, additional air to air missiles for F/A 18 aircraft, enhancement of the ADF minesweeping capability, a mine identification system for minehunters, F-111 aircraft electronic countermeasures, life extension for ADF field vehicles, an air combat training system, new evolved seasparrow missiles for Anzac ships and FFG guided missile frigates, and air to surface weapons.

A further \$2.69b is planned to be spent in 1999–2000 on already approved major capital equipment projects including the Anzac ship, the lead-in fighter capability, the Anzac helicopter capability, strategic airlift capability, updating the P3C aircraft, the Collins submarines, coastal minehunters, evolved seasparrow missiles, the Jindalee radar network, a night-fighting surveillance capability, the F/A 18 Hornet upgrade, active missile decoys, and tactical air defence radars and control and reporting units.

Table 4.3 provides historical information on the proportion of capital equipment expenditure spent in Australia and overseas.

Approximately \$429m will also be spent on capital facilities projects, and almost \$400m will be spent on minor capital equipment and other assets.

## 4.1 DEFENCE OUTLAYS

	Actual outlays						Budget
	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Defence outlays	9 746	9 731	10 011	9 999	10 415	10 946	(a)11 093
Outlays as a percentage of—							
Total Commonwealth outlays	8.5	8.0	7.9	7.8	8.4	8.7	n.a.
Gross Domestic Product	2.3	2.1	2.0	1.9	1.9	1.9	1.8

(a) This figure reflects Departmental Appropriations net of the capital use charge. In real terms it does not reflect an increase in funding.

Source: Department of Defence.

## 4.2 DEFENCE OUTPUTS—1999-2000

	1999-2000 Budget estimate
Departmental outputs	\$m
1. Command of operations	582.4
2. Strategic intelligence	331.1
3. Capability for major surface combatant operations	2 391.0
4. Capability for patrol boat operations	252.7
5. Capability for submarine operations	904.7
6. Military geographic information	205.0
7. Capability for afloat support	227.9
8. Capability for mine countermeasures	294.8
9. Capability for amphibious lift	256.9
10. Capability for special forces operations	206.7
11. Capability for land task force operations	3 781.1
12. Capability for logistics support of land operations	401.1
13. Capability for air strike/reconnaissance	660.3
14. Capability for tactical fighter operations	1 186.3
15. Capability for ground-based air defence	74.9
16. Capability for strategic surveillance	361.8
17. Capability for maritime patrol aircraft operations	721.8
18. Capability for airlift	904.2
19. Capability for combat support of air operations	149.4
20. Effective international relationships and contribution to international activities	274.6
21. Effective contribution to national support tasks	100.8
22. Strategic policy and direction	318.3
Total price of departmental outputs	14 587.8
Total administered expenses	1 952.9
Total resourcing for the defence outcome	16 540.7
Equity injection	1 278.2
Capital receipts	223.5
<b>Total defence funding(a)</b>	<b>18 042.5</b>

(a) In accrual terms.

Source: Department of Defence.

**4.3 MAJOR CAPITAL EQUIPMENT EXPENDITURE, Australia and Overseas**

	Australia	Overseas	Total	Australia
	\$m	\$m	\$m	% of total
1986–87	712	1 343	2 055	34.6
1987–88	933	800	1 733	53.8
1988–89	1 045	734	1 779	58.7
1989–90	1 282	626	1 908	67.2
1990–91	1 400	747	2 147	65.2
1991–92	1 400	824	2 224	62.9
1992–93	1 387	975	2 362	58.7
1993–94	1 528	826	2 354	64.9
1994–95	1 603	785	2 388	67.1
1995–96	1 264	877	2 141	59.0
1996–97	1 118	1 055	2 173	51.4
1997–98	993	1 300	2 203	43.3
1998–99	1 221	1 417	2 638	46.2
1999–2000(a)	1 372	1 378	2 750	49.9

(a) Estimate.

Source: Department of Defence.

**Personnel numbers**

The average personnel strength planned for 1999–2000 is 97,166, a fall of 2,613 from the actual outcome for 1998–99 of 94,553. The 1999–2000 estimate is composed of 50,000 permanent Defence Force members (almost 2,900 below the outcome for 1998–99), 30,695 Reserves

(almost 5,700 above the 1998–99 outcome) and 17,042 civilians (almost the same as the 1998–99 outcome).

Table 4.4 shows the numbers of defence service and civilian personnel for the years 1988–89 to 1998–99 and planned for 1999–2000.

**4.4 DEFENCE PERSONNEL NUMBERS, Service and Civilian—1988–89 to 1999–2000**

	Navy		Army		Air Force		
	Permanent	Reserves(a)	Permanent	Reserves(a)	Permanent	Reserves(a)	Civilian
1988–1989	15 641	1 373	31 896	25 242	22 468	1 628	32 502
1989–1990	15 652	1 494	30 894	23 747	22 279	1 618	24 400
1990–1991	15 786	1 606	30 789	26 485	22 055	1 579	24 412
1991–1992	15 549	2 283	30 733	25 969	21 893	2 457	23 750
1992–1993	15 294	1 812	30 064	24 775	20 780	2 248	22 558
1993–1994	14 776	1 830	27 802	27 616	18 642	2 355	20 724
1994–1995	14 702	1 512	26 483	23 448	17 456	1 510	20 188
1995–1996	14 473	2 014	26 746	22 928	17 240	1 630	19 830
1996–1997	14 377	2 039	25 682	24 600	16 705	1 705	19 042
1997–1998	14 206	1 804	25 196	23 329	16 172	2 063	17 664
1998–1999	13 661	1 227	24 169	21 486	15 065	2 303	16 642
1999–2000 (est.)	13 550	1 803	23 200	26 850	13 250	2 042	16 471

(a) Reserve numbers include reservists participating in the Ready Reserve Scheme which operated from 1991–92 to 1996–97.

Source: Department of Defence.

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## Internet site

Department of Defence, <http://www.defence.gov.au>

—*Annual Report 1998–99* (see above) (<http://www.defence.gov.au/budget/98-99dar.htm>)

—*Defence Service Charter*. A document explaining Defence's service standards (<http://www.defence.gov.au/charters/welcome.html>)

—*Portfolio Budget Statements 1999–2000* (see above) (<http://www.defence.gov.au/budget/99-00pbs.htm>)

—*Strategic Policy 97*. A document establishing the future direction for Defence planning in the 21st century (<http://www.defence.gov.au/minister/sr97/welcome.html>)

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## Introduction

Population statistics are not themselves indicators of wellbeing, whether of individuals, groups or the population as a whole. However, they underpin the discussion of a wide range of issues relating to the population, including immigration, multiculturalism, ageing and population sustainability.

The changing size and distribution of Australia's population have implications for service provision and delivery in areas such as health, education, housing and the labour market. Population trends underlie many social changes and assist in the planning of all areas of social and economic policy.

The principal source of data on the Australian population is the Census of Population and Housing, which has been conducted at five-yearly intervals since 1961. The most recent census was in 1996, and some results from it are included in this chapter.

## Population size and growth

### Introduction

This section examines the size, growth, distribution and age structure of the Australian population. There is an emphasis on the change over time, especially changes in the growth rate of the population.

As shown in table 5.1, Australia's resident population at June 1998 was 18.7 million, an increase of 1.2% over the previous year. The slightly higher growth rate in 1997–98 was mainly due to a resurgence in net overseas migration. The preliminary estimate of net overseas migration was 106,200 persons, 22% higher than in the previous year (87,100).

The growth rate in Australia for the 12 months to June 1997 (1.2%) was similar to the growth rates in the United States of America (1.0%), New Zealand (1.3%), Thailand (1.0%), China (1.0%) and Indonesia (1.6%). The growth rates for Japan (–0.1%), the United Kingdom (–1.0%) and Germany (0.2%) were well below that of Australia, while Singapore (3.5%), Hong Kong (3.0%), Malaysia (2.4%) and Papua New Guinea (2.3%) experienced growth rates above that of Australia. These growth rates are shown in table 5.2.

### 5.1 ESTIMATED RESIDENT POPULATION AND COMPONENTS OF POPULATION CHANGE(a)—1993–98

Year ended 30 June	Births(a) '000	Deaths(a) '000	Natural increase(a) '000	Net permanent and long-term movement '000	Category jumping(b) '000	Net overseas migration(c) '000	Population		
							At end of period '000	Increase '000	Increase %
1993	260.0	121.3	138.6	62.7	–32.6	30.0	17 667.1	172.4	0.99
1994	258.3	123.5	134.8	67.4	–20.8	46.5	17 854.7	187.6	1.06
1995	258.2	126.2	132.0	93.0	–12.9	80.1	18 071.8	217.1	1.22
1996	250.4	126.4	124.0	109.7	–5.5	104.1	18 310.7	238.9	1.32
1997	253.7	127.3	126.4	94.4	–7.3	87.1	18 524.2	213.5	1.17
1998p	249.2	128.6	120.6	79.2	27.1	106.2	18 751.0	226.8	1.22

(a) Numbers of births and deaths are on a year of occurrence basis for final data and will therefore differ from the Births, Deaths and Marriages part of this chapter. Births and deaths data are on a year of registration basis for preliminary data.

(b) An adjustment for the effect of persons whose duration of stay (category) differs from their stated intentions, entailing a reclassification from short-term to permanent/long-term or vice versa. (c) Sum of the net permanent and long-term movement plus category jumping.

Source: Australian Demographic Statistics (3101.0).

5.2 POPULATION SIZE AND RATE OF GROWTH FOR SELECTED COUNTRIES

Country	Population as at June		Rate of growth
	1996	1997	
	million	million	%
Australia	18.3	18.5	1.2
China	1 232.1	1 243.7	1.0
Germany	81.9	82.1	0.2
Hong Kong (SAR of China)	6.3	6.5	3.0
Indonesia	196.8	199.9	1.6
Japan	125.7	125.6	-0.1
Malaysia	21.2	21.7	2.4
New Zealand	3.7	3.8	1.3
Papua New Guinea	4.4	4.5	2.3
Singapore	3.6	3.7	3.5
Thailand	60.0	60.6	1.0
United Kingdom	58.8	58.2	-1.0
United States of America	265.3	267.9	1.0
<b>World</b>	<b>5 768.0</b>	<b>5 849.0</b>	<b>1.4</b>

Source: Australian Demographic Statistics (3101.0); Demographic Yearbook 1997, United Nations; New Zealand Demographic Trends 1998, Statistics New Zealand.

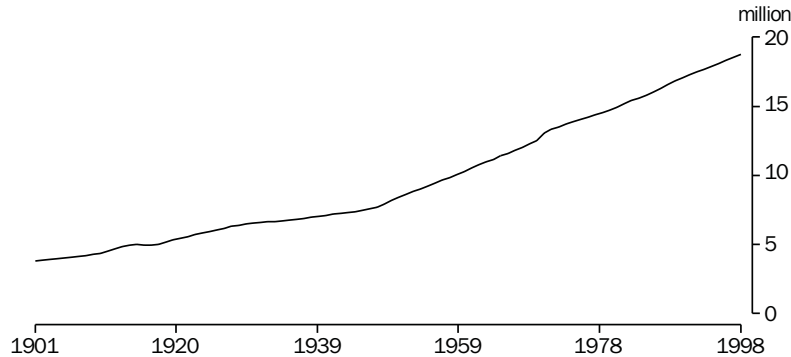
Population size

Australia’s population of 18.7 million at June 1998 was almost five times the size of the population at the time of Federation (1 January 1901). The population was projected to reach 19 million in August 1999. Graph 5.3 shows the growth in Australia’s population since 1901. The main component of Australia’s population growth has been natural increase which, since the beginning of the twentieth century, has contributed about two-thirds of the total growth. Net overseas migration has also contributed to natural increase through the Australian-born children of migrants.

Components of population growth are discussed in more detail in the next section.

Table 5.4 shows that the growth in population has not occurred evenly across the States and Territories. At Federation, South Australia had nearly twice the population of Western Australia, which in turn had only marginally more people than Tasmania. However in 1982 Western Australia surpassed South Australia as the fourth most populous State. In 1998 Western Australia had 3.9 times as many people as Tasmania.

5.3 POPULATION OF AUSTRALIA



Source: Australian Demographic Statistics (3101.0); Australian Demographic Trends (3102.0).

#### 5.4 POPULATION, Australia's States and Territories—1901–98

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
As at 30 June	'000	'000	'000	'000	'000	'000	'000	'000	'000
1901	1 362	1 203	502	356	189	172	5	..	<b>3 788</b>
1908	1 571	1 238	556	378	258	186	4	..	<b>4 191</b>
1918	1 941	1 423	701	451	308	197	5	2	<b>5 029</b>
1928	2 459	1 750	887	571	408	214	5	8	<b>6 302</b>
1938	2 702	1 865	1 004	593	464	235	6	12	<b>6 899</b>
1948	3 016	2 092	1 131	661	515	261	12	20	<b>7 709</b>
1958	3 692	2 718	1 439	897	700	333	22	41	<b>9 842</b>
1968	4 359	3 324	1 729	1 122	915	380	68	112	<b>12 009</b>
1978	5 054	3 864	2 172	1 296	1 228	418	110	218	<b>14 359</b>
1988	5 707	4 263	2 740	1 405	1 535	451	159	272	<b>16 532</b>
1998p	6 342	4 661	3 456	1 487	1 831	472	190	308	<b>18 751</b>

Source: Australian Demographic Statistics (3101.0); Australian Demographic Trends (3102.0).

### Population growth

Population growth results from natural increase (the difference between births and deaths) and net overseas migration (net permanent and long-term arrivals and departures plus an adjustment for category jumping).

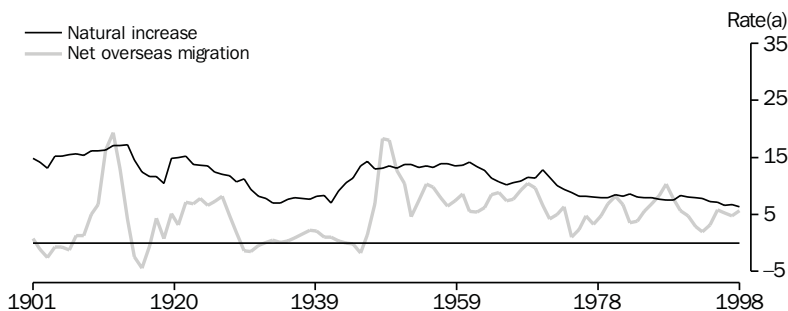
Australia's population grew from 3.8 million at the turn of the century to 18.7 million in June 1998. The second half of the century has seen higher rates of growth than the first due to strong natural increase, with the post World War II baby boom and falling death rates, as well as increased net overseas migration. Natural increase has been the main source of the growth since the turn of the century, contributing two-thirds of the total increase between 1901 and 1998.

Net overseas migration, while a significant source of growth, is much more volatile, fluctuating under the influence of government policy as well as political, economic and social conditions in Australia and the rest of the world.

The growth rates due to natural increase and net overseas migration from 1901 to 1998 are shown in graph 5.5.

In 1901 the average annual rate of natural increase was 14.9 per 1,000 population. It varied considerably over the next 30 years and by the mid-1930s the rate was 7.1 per 1,000. In the post war years the baby boom, and the immigration of many young people who then had children in Australia, increased Australia's birth rate and the rate of natural increase. Natural increase was over 13 per 1,000 population every year from 1946 to 1962.

#### 5.5 COMPONENTS OF POPULATION GROWTH



(a) Rate per 1,000 population.

Source: Australian Demographic Statistics (3101.0); Australian Demographic Trends (3102.0).

Since 1962, falling fertility has led to a fall in the rate of natural increase. In 1971, the rate of natural increase was 13 per 1,000 population; a decade later in 1980 it was 8.5. In 1996 the rate of natural increase fell below 7 for the first time, with the downward trend continuing in 1997 and 1998. ABS population projections indicate that continued low fertility, combined with the increase in deaths from an ageing population, will result in natural increase falling below zero sometime in the 2030s.

Since 1901, the crude death rate has fallen from about 12.2 deaths per 1,000 population to 6.7 in 1998. Crude birth and death rates from 1901 to 1998 are shown in graph 5.6.

### Aboriginal and Torres Strait Islander population

There are no accurate estimates of the population of Australia before European settlement. Many estimates were based on post-1788 observations of a population already reduced by introduced diseases and other factors. In 1930, the anthropologist Radcliffe-Brown postulated a minimum figure of 300,000. In 1980, L.R. Smith estimated the absolute minimum pre-1788 population at 315,000. Other estimates have put the figure at over 1 million, while recent archaeological finds suggest that a population of 750,000 could have been sustained.

Whatever the size of the Indigenous population before European settlement, it declined dramatically under the impact of new diseases, repressive and often brutal treatment,

dispossession, and social and cultural disruption and disintegration (*Year Book Australia, 1994*). The decline of the Indigenous population continued well into the twentieth century.

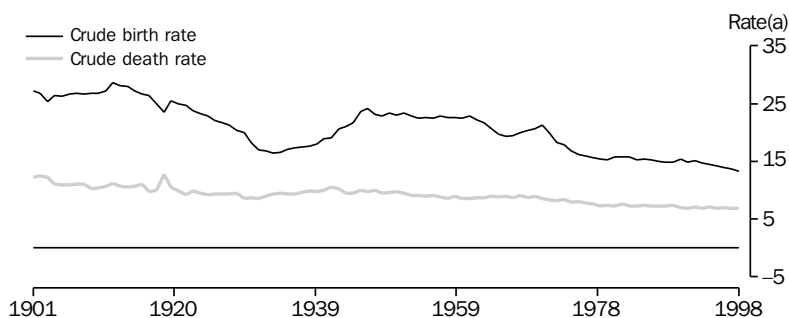
In the last 20 years, changing social attitudes, political developments, improved statistical coverage, and a broader definition of Indigenous origin have all contributed to the increased likelihood of people identifying as being of Aboriginal or Torres Strait Islander origin. This is reflected in the large increases in the number of people who are identified as Indigenous in each Census, increases in excess of those which can be attributed to natural increase in the Indigenous population. Table 5.7 shows the distribution of the Indigenous population in 1991 and 1996.

The Indigenous population has a very young age structure (graph 5.8). With 40% of the population aged under 15, and 3% aged over 65, it has a younger age structure than that of the total Australian population at the beginning of this century.

This age structure is largely a product of high fertility rates. During the 1960s Indigenous women had, on average, about six children each. By the 1980s this had fallen to about three children each, compared to 1.9 for all Australian women.

The age structure also reflects high death rates. For the period 1991–96, life expectancy of Aboriginal and Torres Strait Islander people at birth was about 57 years for males and 66 years for females.

#### 5.6 COMPONENTS OF NATURAL INCREASE



(a) Rate per 1,000 population.

Source: *Australian Demographic Statistics* (3101.0); *Australian Demographic Trends* (3102.0).

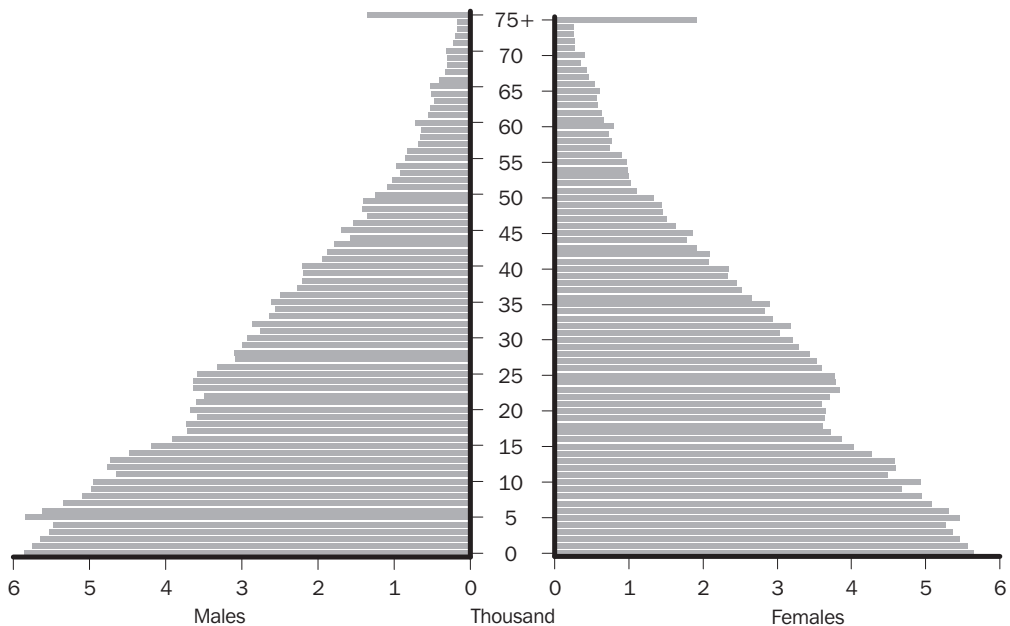
## 5.7 ESTIMATES OF THE INDIGENOUS POPULATION—At 30 June

State/Territory	1991(a)		1996(b)		2001(c)	
	no.	%	no.	%	no.	%
New South Wales	75 020	26.5	109 925	28.5	121 142	28.4
Victoria	17 890	6.3	22 598	5.9	24 856	5.8
Queensland	74 214	26.2	104 817	27.2	118 749	27.8
South Australia	17 239	6.1	22 051	5.7	24 313	5.7
Western Australia	44 082	15.6	56 205	14.6	61 505	14.4
Tasmania	9 461	3.3	15 322	4.0	16 644	3.9
Northern Territory	43 273	15.3	51 876	13.4	56 364	13.2
Australian Capital Territory	1 616	0.6	3 058	0.8	3 589	0.8
<b>Australia(d)</b>	<b>282 979</b>	<b>100.0</b>	<b>386 049</b>	<b>100.0</b>	<b>427 162</b>	<b>100.0</b>

(a) Estimate based on the 1991 Census of Population and Housing. (b) Estimate based on the 1996 Census of Population and Housing. (c) Projection based on low series, which assumes no further increase in propensity to identify as Indigenous from 1996. (d) Includes Jervis Bay.

Source: *Experimental Estimates of the Aboriginal and Torres Strait Islander Population (3230.0)*; *Experimental Projections of the Aboriginal and Torres Strait Islander Population (3231.0)*

## 5.8 AGE STRUCTURE OF THE INDIGENOUS POPULATION— 1996



Source: ABS, unpublished *Experimental Population Estimates*.

While most of the total population is concentrated along the east and (to a lesser extent) the south west coasts, the Indigenous population is much more widely spread. About 90% of Australia's total population are contained within the most densely settled 2.6% of the continent. About 90% of Australia's Indigenous population live in areas covering 25% of the continent. This partly reflects the higher level of

urbanisation among the non-Indigenous population than the Indigenous population. However, Indigenous people are also much more likely to live in very remote areas than the rest of the population. Just over half of the continent contains 0.3% of the total population, and 3.1% of the Indigenous population (see maps 5.13 and 5.9).

## 5.9 DISTRIBUTION OF INDIGENOUS POPULATION(a)—1996



(a) Represents a random distribution within Statistical Local Area boundaries.  
 Source: 1996 Census of Population and Housing.

### Population projections

The ABS has published projections of the Australian population to the year 2051, based on a combination of assumptions concerning future levels of births, deaths and migration. Three main series of projections have been produced, based on differing levels of these variables.

Series I assumes an annual net overseas migration gain of 90,000, small net internal migration gains and losses for States and Territories, and a total fertility rate of 1.75 births per woman by 2005–06, then remaining constant. Series II assumes an annual net overseas migration gain of 70,000, medium net internal migration gains and losses

for States and Territories, and a total fertility rate of 1.75 births per woman by 2005–06, then remaining constant. Series III assumes an annual net overseas migration gain of 70,000, large net internal migration gains and losses for States and Territories, and that the total fertility rate declines to 1.6 births per woman in 2005–06 and then remains constant. All series assume that the decline in mortality experienced between 1987–91 and 1992–96 would continue to 2005–06. From 2005–06 onwards, the average rates of decline experienced in successive 5-year periods from 1967–71 to 1992–96 would be experienced. By 2051, life expectancy is projected to be 82.0 years for males 86.1 years for females.

Graph 5.10 shows that Australia's population is projected to grow from 18.8 million in 1998 to around 19.3 million in 2001 and between 22.1 and 23.1 million in 2051. By 2051, the population is projected to rise to between 23.5 and 26.4 million. Although the rate of growth varies at different times during the projection period, there is a clear long-term declining trend from 1.2% in 1997–98 to between 0.0% and 0.3% by 2051. The reason for this slowing in growth is mainly a projected decline in the natural increase (births minus deaths) of the population. This decline is largely a result of the increasing number of deaths occurring in a rapidly ageing population as well as the low and declining fertility.

The populations of most States and Territories are expected to increase over the projection period, with the largest increase in the Northern Territory (between 84% and 154%), followed by Queensland (between 76% and 90%) and Western Australia (between 67% and 74%) (table 5.11). These levels of increase are well above the national average of between 27% and 42%.

Tasmania is the only State or Territory where the population is projected to decline under each

projection series. Under Series II, the medium projection, the population of South Australia is also projected to decline. Tasmania's population is projected to decline by 35% by 2051, from 471,885 in 1998 to 309,700 in 2051. South Australia's population is projected to be 1.4 million persons in 2051, a 5% decline from its 1998 level of 1.5 million.

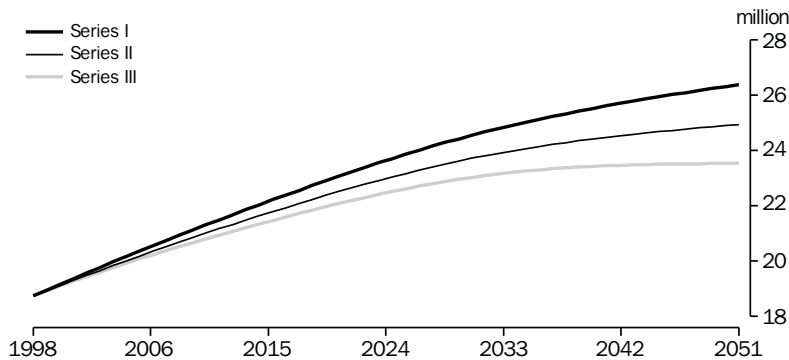
These projections are summarised in table 5.11.

The projections show that the ageing of the population, already evident, is set to continue. The 1998 median age of 34.6 years is projected to increase to between 40.1 and 41.1 years in 2021 and between 43.7 and 46.2 years in 2051.

The age structure of the population will change noticeably by 2051. Graph 5.12 shows a heavier concentration in the ages 50 years and over and smaller increases or slight declines in the younger ages.

The proportion of the population aged 65 and over is expected to increase substantially, from 12% in 1998 to between 24% and 26% in 2051. The proportion aged 85 and over is expected to almost quadruple, from 1.2% in 1998 to around 4.6% in 2051.

**5.10 PROJECTED POPULATION OF AUSTRALIA—As at 30 June**



Source: Population Projections, 1997 to 2051 (3222.0).



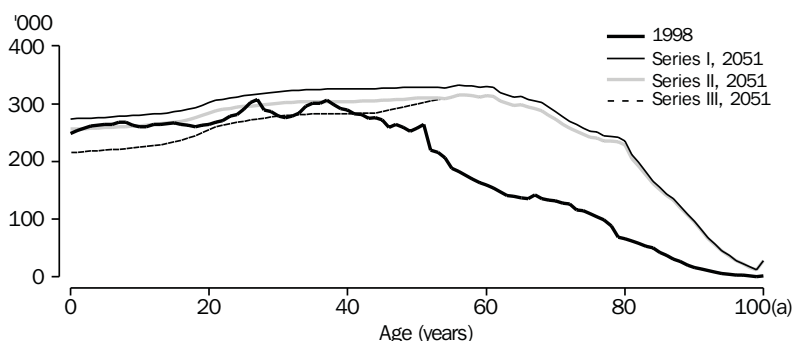
## 5.11 ACTUAL AND PROJECTED POPULATION—As at 30 June

	1998	2021				2051	
	Actual	Series I	Series II	Series III	Series I	Series II	Series III
Capital city/balance of State	'000	'000	'000	'000	'000	'000	'000
Sydney	3 986.7	5 128.3	4 743.4	4 547.9	6 212.8	5 269.4	4 732.0
Balance of New South Wales	2 354.9	2 555.4	2 617.8	2 617.2	2 469.3	2 591.5	2 541.6
<i>Total New South Wales</i>	<i>6 341.6</i>	<i>7 683.7</i>	<i>7 361.2</i>	<i>7 165.1</i>	<i>8 682.1</i>	<i>7 860.9</i>	<i>7 273.5</i>
Melbourne	3 371.3	4 077.9	3 886.0	3 722.8	4 566.0	4 084.5	3 641.9
Balance of Victoria	1 289.6	1 384.4	1 322.4	1 283.5	1 309.8	1 157.5	1 051.5
<i>Total Victoria</i>	<i>4 660.9</i>	<i>5 462.3</i>	<i>5 208.4</i>	<i>5 006.3</i>	<i>5 875.8</i>	<i>5 242.0</i>	<i>4 693.4</i>
Brisbane	1 574.6	2 173.9	2 236.9	2 262.0	2 782.3	2 924.7	2 938.2
Balance of Queensland	1 881.7	2 555.2	2 596.2	2 726.8	3 188.3	3 278.5	3 515.7
<i>Total Queensland</i>	<i>3 456.3</i>	<i>4 729.2</i>	<i>4 833.1</i>	<i>4 988.8</i>	<i>5 970.6</i>	<i>6 203.2</i>	<i>6 454.0</i>
Adelaide	1 088.3	1 183.7	1 145.6	1 087.3	1 155.7	1 060.2	910.9
Balance of South Australia	399.0	425.4	402.6	381.7	395.0	340.0	286.2
<i>Total South Australia</i>	<i>1 487.3</i>	<i>1 609.2</i>	<i>1 548.2</i>	<i>1 469.1</i>	<i>1 550.7</i>	<i>1 400.2</i>	<i>1 197.1</i>
Perth	1 341.9	1 848.7	1 833.2	1 824.0	2 342.6	2 300.5	2 241.4
Balance of Western Australia	489.5	636.4	640.2	628.9	790.5	797.4	754.5
<i>Total Western Australia</i>	<i>1 831.4</i>	<i>2 485.2</i>	<i>2 473.5</i>	<i>2 452.9</i>	<i>3 133.1</i>	<i>3 097.9</i>	<i>2 996.0</i>
Hobart	195.0	193.7	179.0	162.7	159.9	125.5	86.7
Balance of Tasmania	276.9	274.1	259.1	228.0	221.0	184.1	110.8
<i>Total Tasmania</i>	<i>471.9</i>	<i>467.7</i>	<i>438.1</i>	<i>390.7</i>	<i>380.9</i>	<i>309.7</i>	<i>197.5</i>
Darwin	86.6	103.1	143.9	145.8	128.8	235.5	235.0
Balance of Northern Territory	103.4	149.7	145.5	162.5	215.1	204.6	241.1
<i>Total Northern Territory</i>	<i>190.0</i>	<i>252.8</i>	<i>289.4</i>	<i>308.3</i>	<i>343.9</i>	<i>440.1</i>	<i>476.0</i>
<i>Total Australian Capital Territory</i>	<i>308.4</i>	<i>385.1</i>	<i>363.4</i>	<i>304.5</i>	<i>443.0</i>	<i>387.3</i>	<i>239.6</i>
<b>Total Australia(a)</b>	<b>18 751.0</b>	<b>23 078.9</b>	<b>22 519.0</b>	<b>22 089.4</b>	<b>26 383.8</b>	<b>24 944.7</b>	<b>23 530.4</b>

(a) Includes Other Territories.

Source: Population Projections, 1998 to 2051 (3222.0).

## 5.12 AGE STRUCTURE OF THE POPULATION



(a) The 100 years age group includes all ages 100 years and over and therefore is not strictly comparable with single year ages in the rest of the graph.

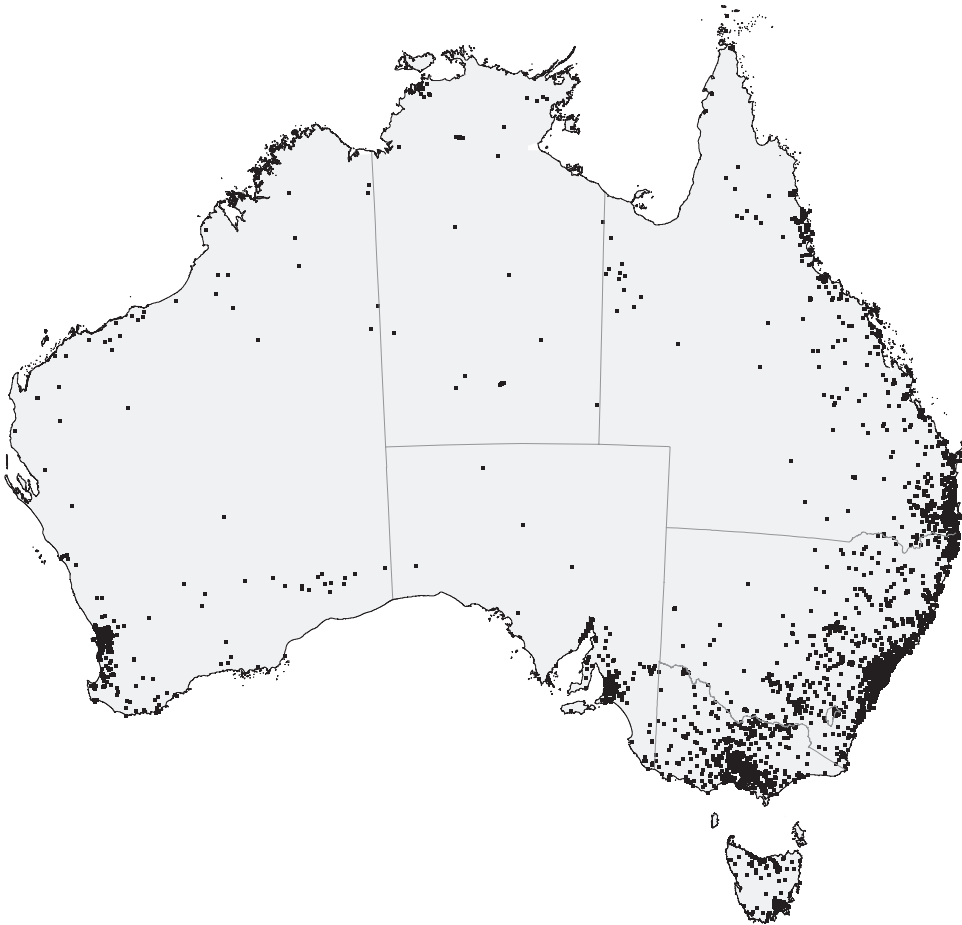
Source: Population Projections, 1997 to 2051 (3222.0); Population by Age and Sex (3201.0).

### Population distribution

Most of Australia's population is concentrated in two widely separated coastal regions. By far the largest of these, in terms of area and population, lies in the south-east and east. The smaller of the two regions is in the south-west of the continent. In both coastal regions the population is

concentrated in urban centres, particularly the State and Territory capital cities. Half the area of the continent contains only 0.3% of the population, and the most densely populated 1% of the continent contains 84% of the population. The distribution of Australia's population is shown in map 5.13.

**5.13 POPULATION(a) DISTRIBUTION, AUSTRALIA—1998**



(a) Estimated resident population.

Source: *Regional Population Growth, Australia, 1998* (3218.0)

While New South Wales remains the most populous State, with 6.34 million people at June 1998, the fastest growth has occurred in Queensland, which increased by 11.1% in the five years to 1998. In contrast, the populations in South Australia and Tasmania remained comparatively stable, increasing by 1.8% and 0.5% over the same period (see table 5.14).

The main factor changing the distribution of Australia's population is internal migration. During 1997–98, 363,700 people moved from one State or Territory to another, around 3% less than in the previous financial year. In 1997–98 only Victoria, Queensland and Western Australia recorded net interstate migration gains. Tasmania's population declined by about 1,600 people, as natural increase in the State was offset by the largest net interstate loss in twenty years (see table 5.15).

#### 5.14 ESTIMATED RESIDENT POPULATION, By State and Territory

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
As at 30 June	'000	'000	'000	'000	'000	'000	'000	'000	'000
1993	6 004.9	4 472.4	3 109.8	1 460.7	1 677.7	471.7	170.7	299.3	17 667.1
1994	6 060.2	4 487.6	3 187.1	1 466.1	1 703.0	472.9	173.4	301.5	17 854.7
1995	6 127.0	4 517.4	3 265.1	1 469.4	1 733.8	473.7	177.6	304.8	18 071.8
1996	6 204.7	4 560.2	3 338.7	1 474.3	1 765.3	474.4	181.8	308.3	18 310.7
1997	6 272.8	4 605.2	3 397.1	1 479.7	1 797.9	473.5	186.9	308.0	18 524.2
1998p	6 341.6	4 660.9	3 456.3	1 487.3	1 831.4	471.9	190.0	308.4	18 750.1

Source: Australian Demographic Statistics (3101.0).

#### 5.15 POPULATION GROWTH RATES

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Year ended 30 June	%	%	%	%	%	%	%	%	%
NATURAL INCREASE									
1993	0.77	0.75	0.84	0.58	0.88	0.67	1.67	1.15	0.78
1994	0.73	0.73	0.82	0.55	0.85	0.66	1.66	1.09	0.76
1995	0.70	0.69	0.80	0.54	0.85	0.63	1.62	1.07	0.73
1996	0.65	0.62	0.76	0.51	0.79	0.53	1.56	0.99	0.68
1997	0.68	0.62	0.75	0.47	0.79	0.52	1.46	0.99	0.68
1998p	0.63	0.62	0.71	0.44	0.74	0.45	1.44	0.88	0.64
NET OVERSEAS MIGRATION									
1993	0.21	0.18	0.12	0.11	0.28	0.02	0.03	-0.20	0.17
1994	0.36	0.24	0.16	0.14	0.39	0.04	0.11	-0.14	0.26
1995	0.59	0.43	0.32	0.20	0.61	0.07	0.26	0.04	0.44
1996	0.77	0.56	0.39	0.25	0.70	0.08	0.31	0.13	0.57
1997	0.59	0.46	0.37	0.21	0.68	0.05	0.29	-0.02	0.47
1998p	0.67	0.55	0.49	0.29	0.83	0.05	0.42	0.13	0.57
NET INTERSTATE MIGRATION									
1993	-0.29	-0.57	1.58	-0.36	-0.01	-0.32	-0.41	0.44	..
1994	-0.20	-0.65	1.41	-0.27	0.22	-0.45	-0.50	-0.14	..
1995	-0.22	-0.49	1.23	-0.48	0.29	-0.56	0.22	-0.16	..
1996	-0.24	-0.28	0.98	-0.42	0.23	-0.55	0.18	-0.21	..
1997	-0.19	-0.10	0.59	-0.31	0.34	-0.77	0.96	-1.04	..
1998p	-0.21	0.03	0.52	-0.22	0.26	-0.84	-0.23	-0.87	..
TOTAL POPULATION GROWTH(a)									
1993	0.71	0.39	2.63	0.29	1.18	0.39	1.58	1.57	0.99
1994	0.92	0.34	2.49	0.37	1.51	0.27	1.55	0.73	1.06
1995	1.10	0.66	2.45	0.22	1.81	0.16	2.41	1.10	1.22
1996	1.27	0.95	2.25	0.33	1.82	0.16	2.42	1.13	1.32
1997	1.10	0.99	1.75	0.37	1.85	-0.20	2.78	-0.08	1.17
1998p	1.10	1.21	1.74	0.51	1.86	-0.34	1.65	0.13	1.22

(a) Differences between the total growth rate and the sum of natural increase and net migration rates arise from retrospective adjustments (which are made after each Census) to eliminate any intercensal discrepancy.

Source: Australian Demographic Statistics (3101.0).

Table 5.16 sets out the estimated resident populations in the major population centres at June 1993 and 1998. About two-thirds of Australia's population growth between 1993 and 1998 (732,000 persons) occurred in the capital cities, the most significant increases being on the outskirts of these metropolitan regions. Of all the capital cities, Brisbane had the highest population growth rate over this period, increasing 10.7% to

1.57 million in 1998. Darwin and Perth had the next highest population growth rates, with increases of 10.1% and 9.5% respectively. More recently, the inner city areas of the two largest capital cities have experienced rapid growth, particularly from the influx of young people. Between 1997 and 1998 the inner city Local Government Area (LGA) of Sydney grew by 26%, while that of Melbourne increased by 6%.

#### 5.16 ESTIMATED RESIDENT POPULATION IN MAJOR POPULATION CENTRES—As at 30 June(a)

	1993	1998p	1993–98(b)
Major population centre	'000	'000	%
Capital City Statistical Division			
Sydney	3 734.8	3 986.7	1.3
Melbourne	3 197.9	3 371.3	1.1
Brisbane	1 422.8	1 574.6	2.1
Adelaide	1 068.6	1 088.4	0.4
Perth	1 225.6	1 341.9	1.8
Hobart	193.6	195.0	0.1
Darwin	78.6	86.6	2.0
Canberra	298.2	308.1	0.7
Other			
Newcastle(c)	451.1	473.9	1.0
Gold Coast–Tweed(c)	306.4	379.2	4.4
Canberra–Queanbeyan(c)	333.8	346.2	0.7
Wollongong(c)	248.7	260.1	0.9
Sunshine Coast(c)	133.7	167.8	4.7
Geelong(c)	152.1	154.1	0.3
Townsville(c)	117.5	124.9	1.2
Cairns(c)	93.6	112.0	3.7
Launceston(c)	97.8	98.4	0.1
Albury–Wodonga(c)	90.2	94.2	0.9
Toowoomba City(d)	85.6	87.0	0.3
Ballarat(c)	78.7	80.3	0.4
Burnie–Devonport(c)	79.3	78.6	–0.2
Bendigo(c)	73.1	75.9	0.8
La Trobe Valley(c)	78.6	75.2	–0.9
Bathurst–Orange(c)	70.1	73.0	0.8
Rockhampton(c)	63.8	64.4	0.2
Mackay(c)	56.4	63.5	2.4
Hastings(c)	52.4	60.0	2.8
Coffs Harbour(c)	53.3	59.2	2.1
Wagga(c)	55.5	56.6	0.4
Bundaberg(c)	50.9	55.3	1.7
Greater Taree(c)	42.8	43.7	0.4
Lismore(c)	43.0	43.5	0.2
Mildura(c)	39.9	42.7	1.4
Shepparton(c)	40.5	41.9	0.7
Gladstone(c)	34.8	38.6	2.1
Dubbo(e)	35.0	37.0	1.1
Tamworth(e)	36.0	35.3	–0.4
Kalgoorlie/Boulder(e)	27.0	31.4	3.1

(a) Based on 1997 Statistical Local Area boundaries. (b) Average annual growth rate. (c) Statistical District. (d) Statistical Subdivision. (e) Statistical Local Area.

Source: Australian Demographic Statistics (3101.0).

Other major population centres experiencing significant population increases between 1993 and 1998 were the Sunshine Coast, Gold Coast–Tweed and Cairns (26%, 24% and 20% respectively). Rapid population growth was also recorded in most statistical local areas (SLAs) elsewhere along the Queensland and New South Wales coastline and in some SLAs in the south-west corner of Western Australia.

Some areas of Australia have experienced significant population decline in recent years. While some of the population declines have occurred in established suburbs within capital cities and major urban centres, the fastest population decline has occurred in rural areas. Most of this decline has been caused by net migration loss. Such population loss is associated with technological, social and economic changes in rural areas, and industry restructuring in local economies. In 1997–98, seven out of the ten fastest declining LGA populations were located in mining districts, and six of these were in Western Australia.

In 1911, 43% of Australians lived in rural areas. This proportion fell steadily, and 14% of the

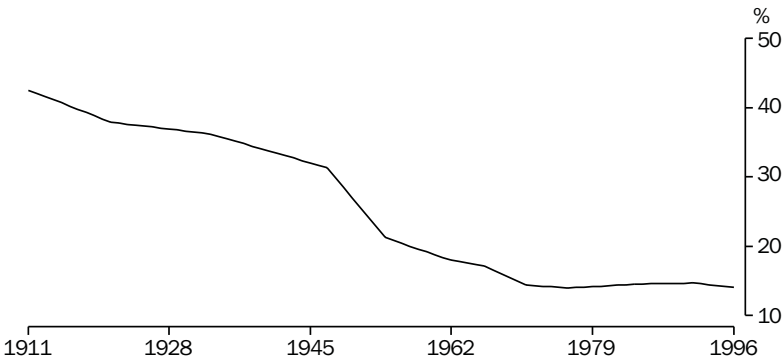
population lived in rural areas by 1976. Between 1976 and 1991 the decline appeared to have halted, and the proportion of people living in rural areas increased slightly (see graph 5.17). This may have been due to people moving to rural areas surrounding the cities, but still working in the city. However, the 1996 Census showed that, once again, the rural population had decreased as a proportion of the total population.

Population age-sex structure

Since the turn of the century the population at all ages has grown significantly, but it has also aged. This is illustrated in graph 5.18 for the years 1901 and 1998.

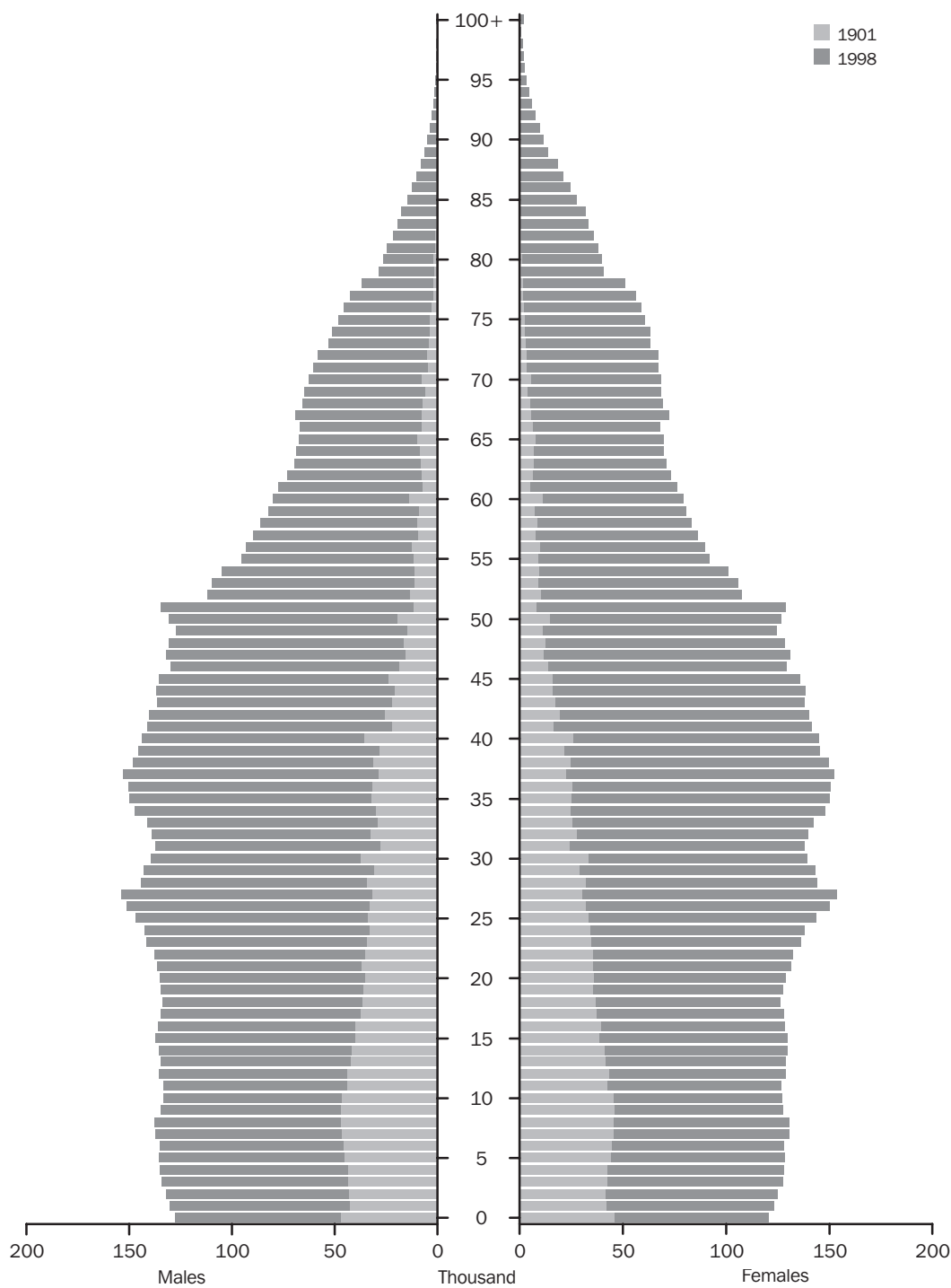
Since the first half of this century, Australians have been having smaller families, so there has been a fall in the proportion of children. In 1901, 37% of the population were aged under 15. By 1998, this proportion had fallen to around 21%. Conversely, the proportion of the population aged 65 and over has increased markedly. In 1901, 4% of the population were aged 65 and over, but by 1998 this proportion had increased to 12%. These features are shown in graph 5.19.

5.17 RURAL POPULATION, Percentage of Total Population



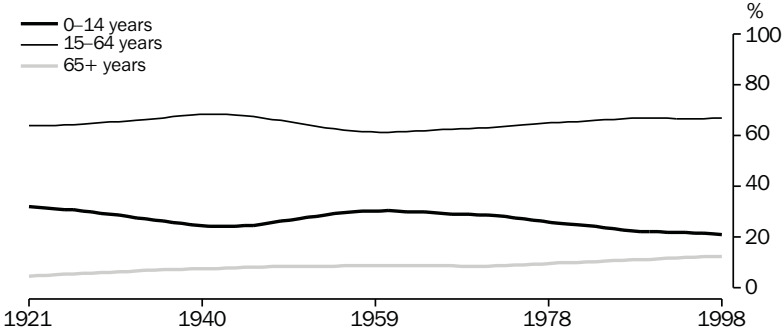
Source: Unpublished data, Census of Population and Housing.

5.18 PROFILE OF AUSTRALIA'S POPULATION, By Age—1901–98



Source: Census of the Commonwealth of Australia, 1911; Population by age and sex, Australian States and Territories (3201.0).

5.19 PROPORTION OF POPULATION IN AGE GROUPS



Source: *Australian Demography* (a Commonwealth Bureau of Census and Statistics publication); *Australian Demographic Statistics* (3101.0).

Births

In 1903, when the crude birth rate was lower than it had ever been before, the Royal Commission On the Decline in the Birth-rate and On the Mortality of Infants in New South Wales was appointed. It reported in 1904 and concluded that “...the cause or causes of the Decline of the Birth-rate must be a force or forces over which the people themselves have control...”. In other words, couples were limiting the size of their families.

At the turn of the century there were 117 births per 1,000 women of child bearing age (15–44 years). This gives a total fertility rate of approximately 3.5 babies per woman. By 1924 the total fertility rate was 3.0 and falling.

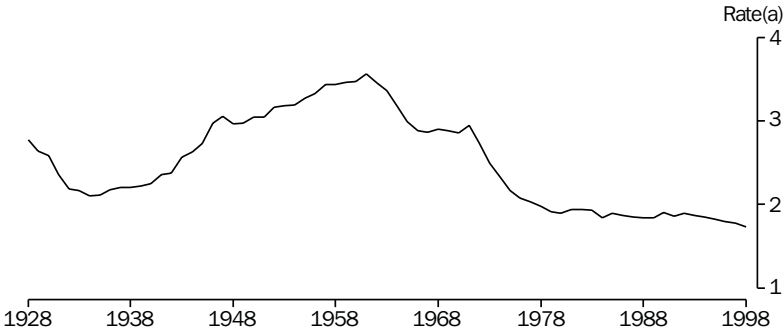
In 1934, in the Great Depression, the total fertility rate fell to 2.1 babies per woman. It then increased during the second half of the 1930s, as

women who had deferred childbearing in the Depression years began to have children. Fertility increased through World War II and the 1950s, and peaked in 1961 when the total fertility rate reached 3.6 babies per woman (see graph 5.20).

After the 1961 peak, the total fertility rate fell rapidly, to 2.9 babies per woman by 1966. This fall can be attributed to changing social attitudes, in particular a change in people’s perception of desired family size, facilitated by the contraceptive pill becoming available.

During the 1970s the total fertility rate dropped again, falling to below replacement level in 1976, where it has remained since. This fall was more marked than the fall in the early 1960s and has been linked to the increasing participation of women in education and the labour force, changing attitudes to family size, lifestyle choices and the availability of abortions.

5.20 TOTAL FERTILITY RATE



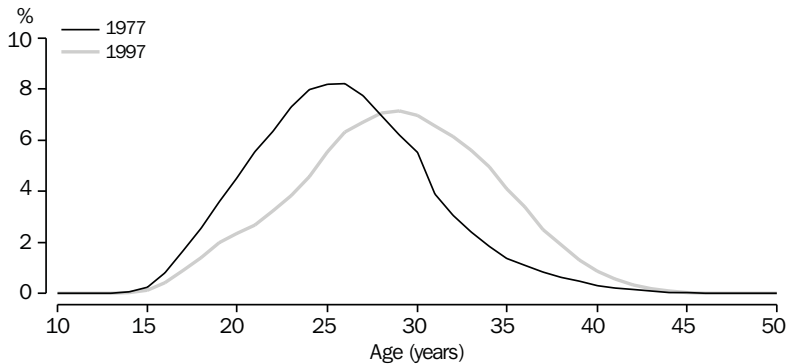
(a) Average number of babies per woman according to the age-specific fertility rates for each year.  
Source: *Australian Demographic Trends* (3102.0); and *Births, Australia* (3301.0).

Women are starting childbearing later in life. The median age at childbearing has increased from 26.1 years in 1977 to 29.4 years in 1997. In 1977, women aged 26 years had the most births, with 8.2% of all births occurring at this age. By 1997 the births peak occurred in 29 year old women, with 7.1% of all births. In the last 20 years there has been a fall in the proportion of total births to

teenage mothers, from 9.0% in 1977 to 4.9% in 1997. Similarly, the proportion of women having children at the ages of 40 years and above has increased from 0.9% to 2.1% in the last twenty years as women have continued to have children later in life (see graph 5.21).

Table 5.22 brings together summary measures of fertility for Census years between 1947 and 1986, and individual years between 1990 and 1997.

### 5.21 AGE DISTRIBUTION OF WOMEN HAVING BABIES



Source: *Births, Australia* (3301.0).

### 5.22 SELECTED SUMMARY MEASURES OF FERTILITY

Year ended 31 December	Registered births		Ex-nuptial births(c)		
	no.	Crude birth rate(a)	Total fertility rate(b)	%	
1947	182 348	24.10	3.08	—	
1954	202 256	22.50	3.19	4.0	
1961	239 986	22.80	3.55	4.0	
1966	223 731	19.30	2.88	5.1	
1971	276 361	21.60	2.87	7.4	
1976	227 810	16.20	2.06	9.3	
1981	235 842	15.80	1.94	10.1	
1986	243 408	15.20	1.87	13.2	
1990	262 648	15.40	1.91	20.2	
1991	257 247	14.90	1.85	21.9	
1992	264 151	15.10	1.89	23.0	
1993	260 229	14.70	1.87	24.0	
1994	258 051	14.50	1.85	24.9	
1995	256 190	14.01	1.82	26.6	
1996	253 834	13.72	1.80	27.4	
1997	251 842	13.53	1.78	28.1	

(a) Per 1,000 population. (b) The number of children a woman would bear during her lifetime if she experienced current age-specific fertility rates at each age of her reproductive life. (c) Proportion of total live births.

Source: *Australian Demographic Statistics* (3101.0).



## Deaths

In the period 1901–10, the average life expectancy of a new-born boy was 55.2 years and that of a new-born girl 58.8 years. By 1995–97, a new-born boy had a life expectancy of 75.5 years and a new-born girl 81.3 years. This represented an increase in life expectancy of 20 years for boys and 22 years for girls. Graph 5.23 shows the changes in life expectancy for males and females between 1906 and 1996.

The increase in life expectancy is mainly due to fewer deaths of young children, particularly in the first year of life (infant mortality). The high mortality rates among infants during the period 1901–10 (about 1 in 10 died in the first year of life) kept the average life expectancy at birth low. Children who survived these early years then had life expectancies nearer to those currently experienced. For example, the life expectancy of a five year old boy improved by 13 years between 1901–10 and 1995, compared to 20 years improvement for a new-born boy.

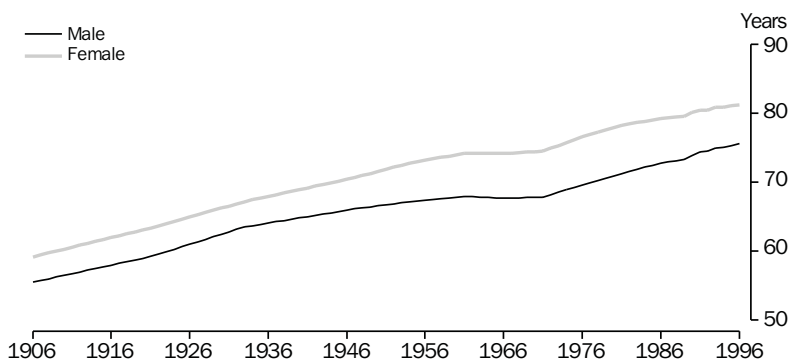
The reduction in mortality in the early part of this century has been attributed to improvements in living conditions, such as better water supplies, sewage systems, food quality and health education. The continuing reduction in mortality in the latter half of the century has been attributed to improving social conditions and

advances in medical technology such as mass immunisation and antibiotics.

The past two decades in particular have seen further increases in life expectancy. These increases are due in part to lower infant mortality, fewer deaths among young adults from motor vehicle accidents and fewer deaths among older men from heart disease. The reduction in the number of deaths from heart disease has been related to behavioural changes, such as dietary improvements, reduced smoking and increased physical activity.

Females experience an average life expectancy about six years longer than males. At the beginning of the century, the difference between male and female life expectancy was about four years, but increased to nearly seven years by the early 1970s. This was largely due to the significant declines in heart disease, stroke and respiratory disease mortality among women, combined with the slight decline in male life expectancy from accidents among males aged 15–24 years and from heart disease among 45–84 year old males. However, the life expectancy gap between males and females has narrowed in recent years (from 6.7 years in 1970–72 to 5.7 years in 1995–97). This can be attributed to the large reductions in death rates of males aged 45 years and over, and particularly to the reduction in heart disease deaths among males.

**5.23 LIFE EXPECTANCY AT BIRTH**



Source: Deaths, Australia (3302.0).

Australians have an average life expectancy which compares well with that experienced in other developed nations. Among the countries shown in table 5.24, the life expectancy at birth of Australian males and females (75 and 81 years respectively) was exceeded or matched by that in Hong Kong, Japan and Sweden. Life expectancy in Australia was greater than in Canada, New Zealand, the United Kingdom and the United States of America.

The standardised death rate removes the effect of different age structures on the crude death rates. Over the last 20 years, the standardised death rate in Australia has fallen by 32%, from 9.1 to 6.2 deaths per 1,000 population (see table 5.25).

Of the States and Territories, the Northern Territory has had the highest standardised (and crude) death rate in the country for the last two decades. This can largely be attributed to high death rates among the Indigenous population. In 1997 Indigenous persons made up 28% of the Northern Territory population, but accounted for 51% of its deaths.

Western Australia and the Australian Capital Territory had the lowest standardised death rates in 1997, both 3% below the national rate.

Table 5.26 brings together summary measures of mortality for Census years between 1947 and 1986, and individual years between 1990 and 1997.

#### 5.24 LIFE EXPECTANCY AT BIRTH, Selected Countries

Country	Reference period	Males	Females
		years	years
Australia	1997	75.6	81.3
Canada	1992	74.6	80.9
China	1990–95	66.9	70.5
France	1995	73.9	81.9
Greece	1995	75.0	80.2
Hong Kong (SAR of China)	1996	76.3	81.8
Indonesia	1990–95	61.0	64.5
Italy	1994	74.3	80.7
Japan	1996	77.0	83.6
Korea (Republic of)	1991	67.7	75.7
Malaysia	1996	69.3	74.1
New Zealand	1992–94	73.4	79.1
Papua New Guinea	1990–95	55.2	56.7
Singapore	1997	75.0	79.2
Sweden	1996	76.5	81.5
United Kingdom	1996	74.3	79.5
United States of America	1995	72.5	78.9
Viet Nam	1990–95	62.9	67.3

Source: Deaths, Australia (3302.0); United Nations 1997.

#### 5.25 STANDARDISED DEATH RATES(a)

State/Territory	1977			1987			1997		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
New South Wales	12.3	7.4	9.3	9.9	5.9	7.6	8.0	4.9	6.3
Victoria	12.1	7.1	9.0	9.9	5.9	7.6	7.9	4.9	6.2
Queensland	11.8	6.9	8.9	9.8	5.8	7.6	7.8	4.8	6.2
South Australia	11.4	6.8	8.6	9.6	5.4	7.2	7.8	4.8	6.1
Western Australia	11.4	6.9	8.8	9.2	5.2	6.9	7.6	4.7	6.0
Tasmania	13.1	7.3	9.5	10.6	6.5	8.3	8.6	5.5	6.8
Northern Territory	22.6	16.3	19.3	13.7	7.9	10.7	11.3	8.4	9.8
Australian Capital Territory	9.9	6.4	7.9	8.6	5.8	7.0	7.1	5.1	6.0
Australia	12.0	7.1	9.1	9.8	5.8	7.6	7.9	4.9	6.2

(a) Deaths per 1,000 standard population. The standard population used is the June 1991 population.

Source: Deaths, Australia (3302.0).

## 5.26 SELECTED SUMMARY MEASURES OF MORTALITY

Year ended 31 December	Registered deaths no.	Crude death rate(a)	Life expectancy at birth	
			Males years	Females years
1947	73 468	9.70	66.07	70.63
1954	81 805	9.10	67.14	72.75
1961	88 961	8.50	67.92	74.18
1966	104 521	9.00	67.63	74.15
1971	110 650	8.70	68.10	74.80
1976	112 662	8.00	69.56	76.56
1981	109 003	7.70	71.23	78.27
1986	114 981	7.20	72.74	79.20
1990	120 062	7.00	73.87	80.06
1991	119 146	6.90	74.40	80.39
1992	123 660	7.10	74.46	80.40
1993	121 599	6.90	74.99	80.86
1994	126 692	7.10	75.04	80.94
1995	125 133	6.75	74.95	80.84
1996	128 719	6.96	75.22	81.05
1997	129 350	6.93	75.57	81.27

(a) Per 1,000 population.

Source: Australian Demographic Statistics (3101.0).

## International migration

Overseas migration plays an important role in changes in the population. Between 1993 and 1998, more than 1.2 million people arrived in Australia intending to stay for one year or more (table 5.27). This includes permanent (settler) arrivals, Australian residents returning from an overseas trip of 12 months or more, and overseas visitors intending to stay 12 months or more in Australia. About 791,000 people left Australia for overseas on a permanent or long term basis in five year period June 1993–98, including Australian residents emigrating or going overseas for 12 months or more, and overseas visitors leaving Australia after staying for 12 months or more.

Because population estimates include permanent and long-term movers and exclude short-term movers, adjustments are required for the net effect of changes in travel intention from short-term to permanent/long-term and vice versa. For example, an Australian resident may state on departure an intention to stay abroad for less than 12 months (a short term movement). If this resident remains overseas for 12 months or more, he or she has changed their travel category to long-term and is regarded as a category jumper. Estimates for category jumping ensure that the estimated population reflects the population who are usually resident.

## 5.27 PERMANENT AND LONG-TERM MIGRATION—Five Years Ended 30 June

	1983 no.	1988 no.	1993 no.	1998p no.
<b>Arrivals</b>				
Permanent (settlers)	469 671	495 918	571 952	419 414
Long-term				
Australian residents	287 622	267 919	299 341	398 397
Overseas visitors	163 376	177 809	284 846	417 239
Permanent and long-term arrivals	920 668	941 646	1 156 139	1 235 050
<b>Departures</b>				
Permanent departures	112 657	103 181	137 662	144 740
Long-term				
Australian residents	250 733	250 243	319 553	356 615
Overseas visitors	104 972	127 377	210 501	290 053
Permanent and long-term departures	468 363	480 801	667 715	791 408
Category jumping	–643	37 421	–21 286	–19 529
Net overseas migration	451 665	498 236	467 137	424 113

Source: Migration, Australia (3412.0).

Over the last 30 years there has been a significant change in the source countries of settlers. In the 1960s the top six countries of birth represented 81% of all settler arrivals to Australia, including 51% born in the United Kingdom and Ireland. In the 1990s 49% came from the top six countries, with 15% born in the United Kingdom and Ireland (see table 5.28).

### 5.28 BIRTHPLACE OF SETTLER ARRIVALS

Country	'000	%
<b>1964–68</b>		
United Kingdom and Ireland	361.6	50.4
Greece	67.0	9.3
Italy	63.2	8.8
Yugoslavia	38.5	5.4
Germany	18.3	2.5
Malta	16.5	2.3
<b>1974–78</b>		
United Kingdom and Ireland	142.6	35.8
New Zealand	22.6	5.7
Lebanon	21.7	5.4
Yugoslavia	15.5	3.9
Greece	10.5	2.6
USA	10.1	2.5
<b>1984–88</b>		
United Kingdom and Ireland	91.9	18.5
New Zealand	62.6	12.6
Viet Nam	37.8	7.6
Philippines	27.0	5.4
South Africa	14.7	3.0
Poland	7.7	1.5
<b>1994–98</b>		
New Zealand	58.3	13.9
United Kingdom and Ireland	53.6	12.8
China	29.8	7.1
Viet Nam	19.4	4.6
Hong Kong (SAR of China)	19.0	4.5
Philippines	17.1	4.1

Source: *Australian Demography* (a Commonwealth Bureau of Census and Statistics publication); *Australian Immigration—Consolidated Statistics*, No. 10, 1978; *Overseas Arrivals and Departures, Australia* (3401.0).

In 1997–98, 77,000 people arrived in Australia intending to settle. The majority of these (61%) arrived as part of the Migration Program. Another 11% arrived as part of the Humanitarian Program, while 25% were eligible to settle in Australia because of their New Zealand citizenship. The remaining 3% were in other categories such as overseas-born children of Australian citizens.

The number of visas issued to prospective settlers varies significantly from year to year. So too does the balance between the types of visas issued. Skilled migration is a very volatile component of

the migration intake. Table 5.29 shows that, in the six years to 1997–98, the Skilled Migration composition ranged from 18% in 1993–94 to 34% in 1997–98. Of the skilled migrants in 1997–98, 29% came from Europe (especially the United Kingdom and Ireland), while 23% came from North East Asia. Africa and South East Asia also contributed a relatively high proportion of skilled immigrants to Australia, with 16% and 13% of the total intake respectively.

In 1997–98, 27% of settlers came as part of the family component of Australia's immigration program. The birthplaces of these immigrants partly reflect past migration patterns. About 25% were born in Europe, with another 25% born in South East Asia.

Of settlers arriving as part of the Humanitarian Program, 49% come from Europe, mostly from Bosnia-Herzegovina and Croatia. Over a quarter of immigrants on humanitarian visas had been born in North Africa and the Middle East.

### Asia-born arrivals

Over the last two decades, the countries of Southeast Asia, Northeast Asia and Southern Asia have become an increasingly important source of both settler and long-term visitor arrivals.

Before 1980 the number of settlers from the Asian region was small. With the final dismantling of the White Australia Policy in the early 1970s and acceptance of refugees from the Viet Nam war, the number of migrants from Asia began to increase.

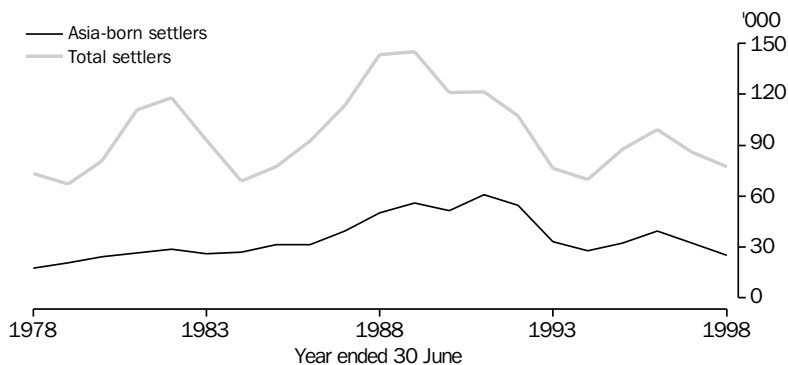
Generally, the level of permanent arrivals from the Asian region has followed the patterns of total permanent arrivals, reflecting the constraints of the Migration and Humanitarian Programs. The number of Asia-born arrivals has fluctuated markedly, peaking between 1988–89 (55,700) and 1990–91 (60,900) (see graph 5.30). In 1997–98, a total of 25,300 settlers born in Asia (33% of all settler arrivals) arrived in Australia.

Graph 5.31 shows that levels of long-term visitor arrivals from Asia have increased greatly over the last ten years after being very low during the 1970s and early 1980s. Arrivals in 1997–98 (59,700 or 57% of all long-term visitor arrivals) were over 12 times as high as in 1977–78 and four times as high as in 1987–88. The main reason for this growth has been the increasing number of students travelling to Australia from Asia for educational purposes. In 1997–98, over three-quarters (77%) of all Asia-born long-term visitor arrivals were for education.

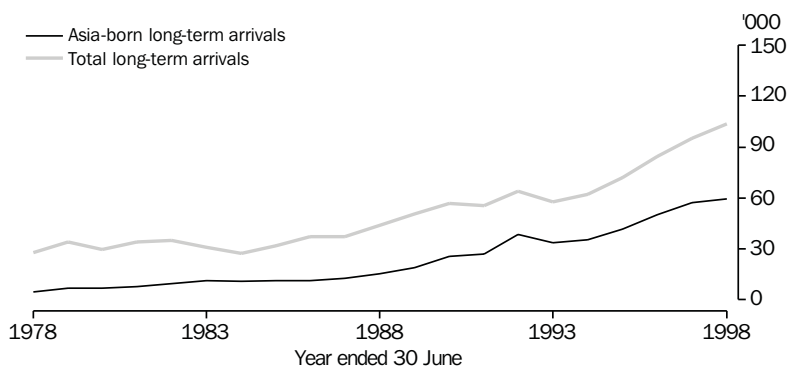
**5.29 SETTLER ARRIVALS, By Eligibility Category**

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98p
Eligibility category	no.	no.	no.	no.	no.	no.
Family	32 102	33 580	37 078	46 458	36 490	21 142
Skilled	22 137	12 794	20 210	20 008	19 697	25 985
Humanitarian	10 939	11 350	13 632	13 824	9 886	8 779
New Zealand	8 355	9 616	13 618	16 234	17 501	19 393
Other	2 797	2 428	2 890	2 615	2 178	2 028
<b>Total</b>	<b>76 330</b>	<b>69 768</b>	<b>87 428</b>	<b>99 139</b>	<b>85 752</b>	<b>77 327</b>

Source: Department of Immigration and Multicultural Affairs.

**5.30 ASIA-BORN SETTLER ARRIVALS**

Source: *Migration, Australia* (3412.0); unpublished data, Overseas Arrivals and Departures.

**5.31 LONG-TERM ARRIVALS OF THE ASIA-BORN**

Source: *Migration, Australia* (3412.0); unpublished data, Overseas Arrivals and Departures.

## Country of birth

Since the end of World War II the population increased rapidly due to high levels of migration, and the proportion of the population born overseas increased from 10% in 1947 to 23% at June 1998 (table 5.32). As well as this increase, there has been a diversification of the population. In 1947, 81% of the overseas born population came from the main English speaking countries (the United Kingdom and Ireland, New Zealand, South Africa, Canada and the United States), mainly from the United Kingdom and Ireland. By June 1998, only 39% of the overseas born population had been born in the main English speaking countries.

For the last few decades, the Italian, Greek and Dutch born populations in Australia have been declining. There were large flows of people from these countries after World War II, and relatively little migration more recently. As these populations age, they experience high numbers of deaths. There are also significant numbers of people returning to their countries of birth in their retirement.

Preliminary population estimates for 1998 identified 23% of the population as overseas born. The 1996 Census showed that a further 27% of persons born in Australia had at least one overseas born parent, that is, they were second

generation Australians. The variety and size of second generation populations reflect past migration and intermarriage patterns. In long established migration groups, such as those from the United Kingdom and Ireland, and from northern and southern Europe, second generation Australians form more than half the total birthplace group. In more recently arrived groups, such as those born in Viet Nam, second generation Australians form a smaller part of the birthplace group. This is illustrated in table 5.33.

## Marriages and divorces

### Marriages

The crude marriage rate in Australia (the annual number of registered marriages per 1,000 population) has fluctuated since 1901. Broadly, the crude marriage rate has followed the pattern of prevailing economic and social conditions. It has fallen in times of depression or recession (e.g. in the 1930s), and increased in other times such as the immediate post-war years of the early 1920s and late 1940s. Marriage rates have also increased during times of war. The 1998 crude marriage rate of 5.9 marriages per 1,000 population has increased slightly from 1997, which at 5.8 per 1,000 population was the lowest rate on record. The highest crude marriage rate ever recorded was 12.0 per 1,000 in 1942.

**5.32 MAIN COUNTRIES OF BIRTH OF THE POPULATION**

	1947(a)	1954(a)	1961(a)	1971(a)	1981(b)	1991(b)	1998p(b)
Country	'000	'000	'000	'000	'000	'000	'000
United Kingdom and Ireland	541.3	664.2	755.4	1 088.3	1 175.7	1 244.3	1 230.4
New Zealand	43.6	43.4	47.0	80.5	175.7	286.4	339.3
Italy	33.6	119.9	228.3	289.5	285.3	272.0	251.4
Former Yugoslav Republics	5.9	22.9	49.8	129.8	156.1	168.0	202.2
Viet Nam	n.a.	n.a.	n.a.	0.7	43.4	124.8	169.6
Greece	12.3	25.9	77.3	160.2	153.2	147.4	141.6
Germany	14.6	65.4	109.3	110.8	115.2	120.4	121.2
China	6.4	10.3	14.5	17.6	26.8	84.6	139.8
Hong Kong (SAR of China)	n.a.	n.a.	n.a.	n.a.	16.3	(c)62.4	(c)64.9
Netherlands	2.2	52.0	102.1	99.3	100.5	100.9	95.3
Philippines	0.1	0.2	0.4	2.6	15.8	79.1	111.7
Total overseas	744.2	1 286.5	1 778.8	2 579.3	3 111.0	3 965.3	4 394.4
Australia	6 835.2	7 700.1	8 729.4	10 176.3	11 812.3	13 318.8	14 356.6
<b>Total population</b>	<b>7 579.4</b>	<b>8 986.5</b>	<b>10 508.2</b>	<b>12 755.6</b>	<b>14 923.3</b>	<b>17 284.0</b>	<b>18 751.0</b>

(a) Census counts. (b) Estimated resident population. (c) Includes Macao.

Source: *Australia in Profile* (2821.0); *Estimated Resident Population by Country of Birth, Age and Sex, Australia* (3221.0); *Migration, Australia* (3412.0).

## 5.33 FIRST AND SECOND GENERATION AUSTRALIANS—1996

Country	Overseas born(a)	Second generation Australians	Total
	'000	'000	'000
United Kingdom and Ireland	1 124.0	1 522.9	2 647.0
Italy	238.2	333.9	572.1
New Zealand	291.4	200.0	491.4
Former Yugoslav Republics	175.4	131.3	306.7
Greece	126.5	153.9	280.5
Germany	110.3	139.3	249.6
Netherlands	87.9	142.5	230.4
Viet Nam	151.1	46.8	197.8
China	111.0	40.2	151.2
<b>Total population</b>	<b>3 901.9</b>	<b>3 595.3</b>	<b>7 497.2</b>

(a) The population identified in this table is based on Census counts, and not the estimated resident population; it therefore has slightly lower levels than the total overseas-born population in table 5.32.

Source: Unpublished data, 1996 Census of Population and Housing.

The crude marriage rate has been declining since 1970. This decline in the marriage rate can be mainly attributed to changes in attitudes to marriage and living arrangements that have occurred since then.

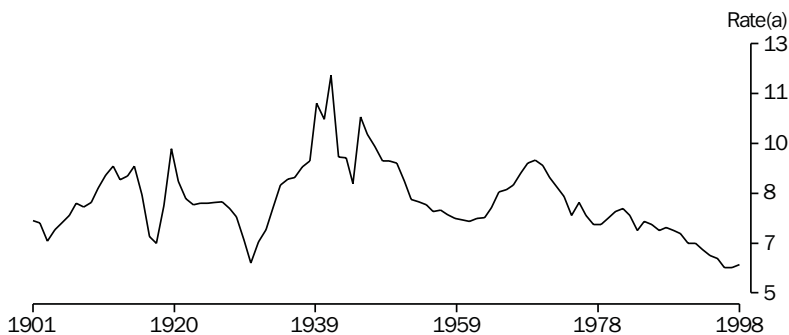
The fluctuations in the crude marriage rate between 1901 and 1998 are shown in graph 5.34.

Recent trends show that Australians are marrying later. The median ages of brides and bridegrooms at first marriage have increased from 21.1 and

23.4 years, respectively, in 1971 to 26.2 and 27.9 years in 1998 (graph 5.35). Part of this increase can be attributed to the increasing incidence of de facto relationships. Another factor is that young people are staying in education longer.

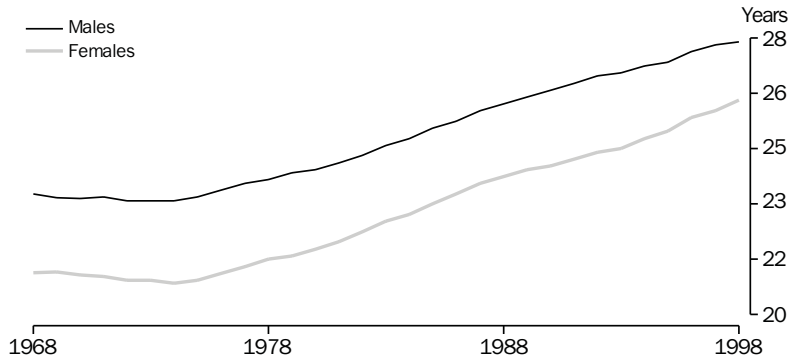
In 66% of all marriages in 1998 the groom was older than the bride. However, there was a strong tendency for couples to be about the same age, with 45% of couples being within two years of each other, and only 8% being more than 10 years apart in age (graph 5.36).

## 5.34 CRUDE MARRIAGE RATE

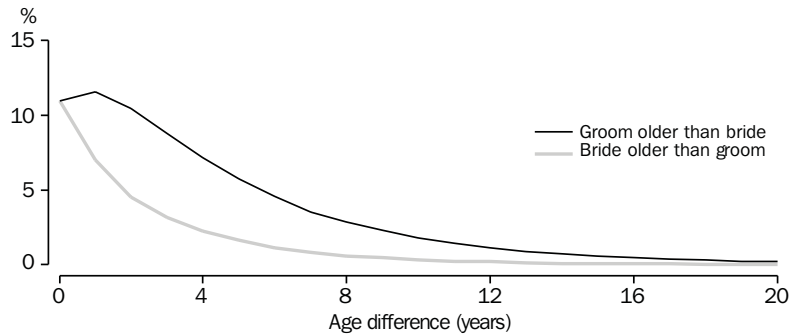


(a) Rate per 1,000 population.

Source: Australian Social Trends (4102.0); Marriages and Divorces, Australia (3310.0).

**5.35 MEDIAN AGE AT FIRST MARRIAGE**

Source: *Marriages and Divorces, Australia* (3310.0).

**5.36 BRIDE AND GROOM AGE DIFFERENCE AT MARRIAGE,  
Percentage of all marriages—1998**

Source: *Marriages and Divorces Australia* (3310.0).



Table 5.37 brings together summary measures of marriages for Census years between 1947 and 1986, and individual years between 1990 and 1998.

### De facto marriages

Between 1992 and 1997, the number of people in de facto relationships rose by 6.4% from 710,800 to 756,500 people. In 1997, de facto partners

represented 9.1% of all persons living in couple relationships (up from 8.5% in 1992) and 5.3% of persons aged 15 years and over (the same as in 1992). The proportion in de facto relationships peaked among people aged 25–29. It was also high in the adjacent age groups and then fell away to lower levels with increasing age (see graph 5.38). Of all de facto partners in 1997, 56% were aged 20–34.

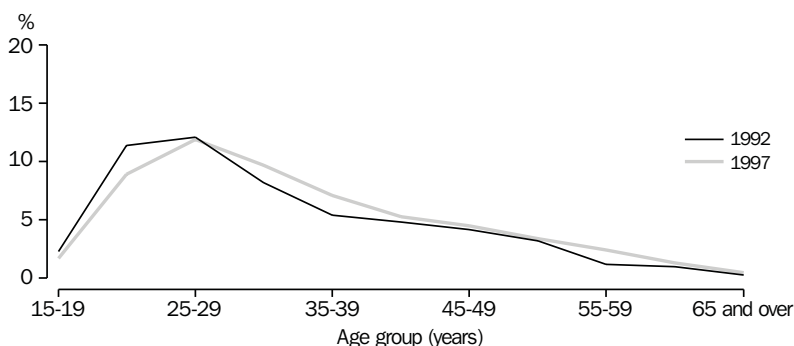
**5.37 SELECTED SUMMARY MEASURES OF MARRIAGES**

Year ended 31 December	Registered marriages		Median age at marriage	
			Bridegroom	Bride
	no.	Crude marriage rate(a)	years	years
1947	76 457	10.1	26.0	23.0
1954	71 229	7.9	25.6	22.6
1961	76 686	7.3	24.9	21.8
1966	96 061	8.3	24.2	21.5
1971	117 637	9.2	23.8	21.4
1976	109 973	7.9	24.9	22.2
1981	113 905	7.6	25.9	23.3
1986	114 913	7.2	27.3	24.9
1990	116 959	6.9	28.2	25.9
1991	113 869	6.6	28.4	26.0
1992	114 752	6.6	28.7	26.3
1993	113 255	6.4	28.8	26.4
1994	111 174	6.2	29.0	26.6
1995	109 386	6.1	29.2	26.8
1996	106 103	5.8	29.6	27.2
1997	106 735	5.8	29.7	27.5
1998	110 598	5.9	29.8	27.7

(a) Per 1,000 population.

Source: Australian Demographic Statistics (3101.0); Marriages and Divorces, Australia (3310.0).

**5.38 DE FACTO PARTNERS IN THE POPULATION**



Source: Unpublished data, 1992 Survey of Families in Australia; and 1997 Family Characteristics Survey.

De facto partnering has arisen as an alternative living arrangement following separation, divorce or widowhood. Some couple relationships, such as that between a boyfriend and girlfriend who live together but do not consider their relationship to be marriage-like, are classified as de facto.

Of all people in de facto relationships in 1997, 69% had never been in a registered marriage, and 29% were either separated or divorced. The likelihood of being never married was higher among those aged under 35, counterbalanced by higher proportions of separated and divorced de facto partners aged 35 and over (see graph 5.39).

In 1997, 46% of de facto couples had children, compared with 39% in 1992.

Divorces

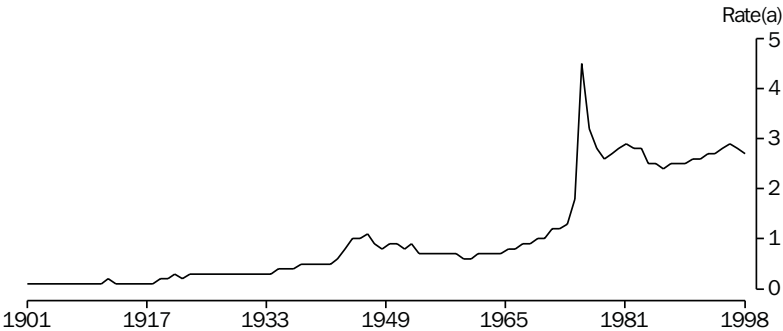
The *Family Law Act 1975* allows only one ground for divorce: irretrievable breakdown of the marriage, measured as the separation of the spouses for at least one year. The implementation of this law resulted in a large increase in the divorce rate in 1976. The rate then declined until 1979 as the backlog of applications was cleared. Since then the crude divorce rate has fluctuated between 2.4 and 2.9 divorces per 1,000 population (see graph 5.40). The pattern of divorces per 1,000 married couples is very similar, although data are not available before 1981. In 1998 there were 12.4 divorces per 1,000 married couples.

5.39 PERSONS IN DE FACTO RELATIONSHIPS—1997



Source: *Family Characteristics, Australia* (4442.0).

5.40 CRUDE DIVORCE RATE



(a) Rate per 1,000 population.

Source: *Marriages and Divorces, Australia* (3310.0).

## 5.41 SELECTED SUMMARY MEASURES OF DIVORCES

Year ended 31 December	Divorces granted		Median age at date decree made absolute	
	no.	Crude divorce rate(a)	Husband years	Wife years
1947	8 705	1.1	n.a.	n.a.
1954	6 457	0.7	37.8	34.5
1961	6 712	0.6	38.7	35.9
1966	9 859	0.8	40.4	36.9
1971	12 947	1.0	37.9	34.4
1976	63 230	4.5	36.2	33.1
1981	41 412	2.8	35.5	32.8
1986	39 417	2.5	37.5	34.7
1990	42 635	2.5	38.2	35.3
1991	45 652	2.6	38.4	35.5
1992	45 729	2.6	38.7	35.9
1993	48 363	2.7	39.3	36.4
1994	48 312	2.7	39.7	36.8
1995	49 712	2.8	39.9	37.1
1996	52 466	2.9	40.2	37.4
1997	51 288	2.8	40.3	37.6
1998	51 370	2.7	40.5	37.8

(a) Per 1,000 population.

Source: Australian Demographic Statistics (3101.0); Marriages and Divorces, Australia (3310.0).

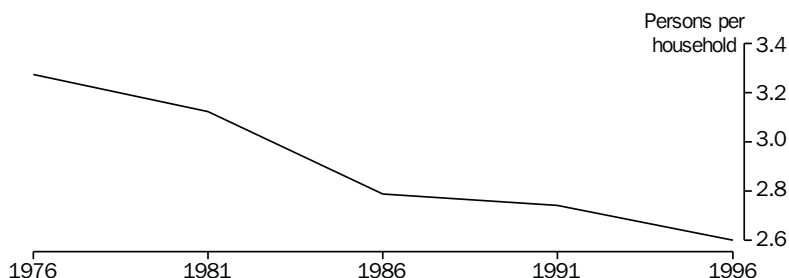
A study of marriages from 1977 to 1994 (*Marriages and Divorces, Australia, 1994* (3310.0)) found that about 43% of all marriages are likely to end in divorce; 8% within five years of marriage, 19% within ten years, 32% within twenty years and 39% within thirty years. Remarriages following divorce have the highest risk of divorce. The probability of divorce is slightly lower for first marriages and much lower for remarriages following widowhood.

Table 5.41 brings together summary measures of divorces for Census years between 1947 and 1986, and individual years between 1990 and 1998.

## Households and families

At June 1998 there were an estimated 7.1 million households in Australia. Over the past 20 years the average size of households has fallen significantly (see graph 5.42). The number of one person households has grown (due largely to the ageing of the population) as has the number of one parent families. Couples having smaller families have also contributed to the fall in household size.

## 5.42 AVERAGE HOUSEHOLD SIZE



Source: Census of Population and Housing, 30 June 1981: Summary Characteristics of Persons and Dwellings (2443.0); Household Estimates, Australia (3229.0); Australian Demographic Statistics (3101.0).

**5.43 FAMILY TYPE—1976–96**

	1976(a)	1981(a)	1986(a)	1991(a)	1996
Family type	%	%	%	%	%
One parent family with dependent children	6.5	8.6	7.8	8.8	9.9
Couple only	28.0	28.7	30.3	31.4	34.1
Couple with dependent children	48.4	46.6	44.8	44.4	40.6
Couple with non-dependent children only	11.1	10.0	10.9	9.5	9.0
Other families	5.9	6.0	6.2	5.9	6.4
Total	100.0	100.0	100.0	100.0	100.0

(a) Excludes caravan park dwellers.

Source: 1976–91: *Australian Social Trends, 1994* (4102.0); 1996 *Census of Population and Housing*.

In 1976, 60% of families were made up of couples with children. By 1996, this had fallen to 50% (table 5.43). Part of this change can be attributed to the increase in one parent families with dependent children, but most of the change is due to the increase in the proportion of couple-only families. People are having children later in life, and are living longer. They are spending more time living in couple-only families, both before they have children and after their children have left home.

## Citizenship

The concept of Australian citizenship is less than 50 years old. Prior to the *Nationality and Citizenship Act 1948* (since renamed the *Australian Citizenship Act 1948*) coming into effect on Australia Day 1949, Australians were simply British subjects. Between that day and June 1998, 3.2 million grants of citizenship were made.

In 1994, the Joint Standing Committee on Migration stated, “Citizenship is the cornerstone of national identity. It defines an individual’s legal relationship with Australia, and signals an individual’s membership of the Australian community... citizenship represents an individual’s commitment to Australia, including the principles on which Australian society is based.”

Generally, older people, and those who have lived in Australia a long time, tend to have higher citizenship rates than younger, more recently arrived migrants. For example, the 1996 Census showed that 96% of the Greek-born population, which is relatively old and has been in Australia for a comparatively long time, had taken out Australian citizenship.

Standardising for these factors gives the citizenship rates that would be expected if a given

overseas-born population had the same profile of age and period of residence as the total overseas-born population (see table 5.44). The standardised citizenship rate for the Greek-born population was 87%. Based on standardised rates, people born in Viet Nam had the highest rate of citizenship (90%) in 1996.

People born in the main English speaking countries, such as the United Kingdom and New Zealand, had low standardised citizenship rates. This may be because “...the shared language, and strongly similar legal, political, and industrial relations arrangements of Australia and the other Anglo-American countries lead these immigrants to feel less need to make a choice of national identity.” (Evans, M. 1988).

Between 1949 and 1965, only 4% of citizenship grants were made to former citizens of the United Kingdom and Ireland. Former Italian citizens made up 21% of new citizens in that period, followed by former citizens of the Netherlands (13%), the then USSR and Poland (both 12%).

In the late 1960s, former citizens of the United Kingdom and Ireland increased their take-up of Australian citizenship and represented 10% of grants of citizenship between 1965 and 1970, third after former Italian citizens (21%) and former Greek citizens (13%). In the 1970s, legislative changes concerning applications for citizenship and visa requirements affected Commonwealth citizens in Australia. Since then, the United Kingdom and Ireland have consistently been the largest source of new Australian citizens. About 31% of all citizenship grants since 1970 were to people from these countries. Most recently, in 1997–98, slightly more than one-fifth of grants were to people from these countries while slightly fewer than one-fifth were to people from China (as shown in table 5.45).

## 5.44 CITIZENSHIP RATES, By Country of Birth—1996

Country	Persons	Citizenship rate	Standardised citizenship rate(a)
	'000	%	%
Viet Nam	151.1	88.5	89.6
Former Yugoslav Republics	175.4	87.5	87.3
Greece	126.5	96.1	87.3
China	111.0	48.6	76.3
Italy	238.2	78.8	65.6
Germany	110.3	75.8	63.1
Netherlands	87.9	77.7	60.4
United Kingdom	1 124.0	60.5	57.5
New Zealand	291.4	32.3	38.3
<b>Total overseas born</b>	<b>3 901.9</b>	<b>67.8</b>	<b>67.8</b>

(a) The rates of citizenship that would be expected if the population had the same age and period of residence profile as the total overseas born population.

Source: Unpublished data, 1996 Census of Population and Housing.

## 5.45 FORMER NATIONALITY, People Granted Australian Citizenship—1997–98

Citizenship	no.	%
British or Irish	24 247	21.6
Chinese (PRC incl. HKSAR)	21 053	18.7
New Zealander	8 764	7.8
Vietnamese	4 685	4.2
Filipino	3 688	3.3
Indian	3 358	3.0
Yugoslav (former)	3 153	2.8
Iraqi	2 877	2.6
Bosnia-Herzegovinian	2 728	2.4
Sri Lankan	2 049	1.8
Fiji (citizen of)	1 934	1.7
South African	1 880	1.7
United States (citizen of)	1 565	1.4
Lebanese	1 364	1.2
Cambodian	1 233	1.1
Iranian	1 143	1.0
Italian	1 063	0.9
Turkish	1 029	0.9
Croatian	935	0.8
Bangladeshi	921	0.8
Chinese (Taiwan)	907	0.8
Canadian	808	0.7
Pakistani	784	0.7
Maltese	725	0.6
Thai	722	0.6
Polish	718	0.6
Malaysian	719	0.6
Korean	685	0.6
Portuguese	672	0.6
Ukrainian	619	0.6
Myanmar (citizen of)	599	0.5
Indonesian	545	0.5
Egyptian	511	0.5
USSR, former (citizen of)	493	0.4
Russian	481	0.4
Other countries (citizens of)	11 031	9.8
Stateless	1 655	1.5
<b>Total</b>	<b>112 343</b>	<b>100.0</b>

Source: Department of Immigration and Multicultural Affairs 'Immigration Update'.

## Religion

In 1983, the High Court of Australia defined religion as "a complex of beliefs and practices which point to a set of values and an understanding of the meaning of existence".

At the time of European settlement, the Aboriginal inhabitants followed their own religions which were animistic in nature, involving belief in spirits behind the forces of nature and the influence of ancestral spirit beings.

During the 1800s, European settlers brought their traditional churches to Australia. These included the Church of England (now the Anglican Church), and the Methodist, Catholic, Presbyterian, Congregationalist and Baptist churches. In 1838, German Lutherans arrived in South Australia. From the 1840s onwards, groups such as Mormons, Swedenborgians, Spiritualists, Christadelphians, Seventh-day Adventists, Christian Scientists and Jehovah's Witnesses arrived in Australia.

With the exception of a small but significant Lutheran element, Australian society in 1901 was predominantly Anglo-Celtic, with 40% of the population being Church of England, 23% Catholic, 34% other Christian and about 1.4% professing non-Christian religions. By the time of the Census in 1954, the population had more than doubled, but the profile was similar with 38% Church of England (Anglican), 23% Catholic, 28% other Christian denominations and 0.6% non-Christian religions.

In subsequent decades, further immigration to Australia reshaped the religious profile. The impact of migration from Europe in the aftermath of World War II led to an increase in affiliates of the Orthodox Churches, the forming of Reformed bodies, and the growth in the number of Catholics, particularly from Italian migration, as well as the formation of ethnic parishes in many other denominations. More recently, immigration from South East Asia and the Middle East has expanded Buddhist and Muslim numbers considerably, while also adding to the ethnic diversity in Christian groups. At the 1996 Census, Australians' religious affiliations were: 27% Catholic, 22% Anglican, 22% other Christian denominations and 3% non-Christian religions, with some 25% uncommitted or professing no religion.

The growth of the proportion choosing not to state their religion or stating that they had no religion has been an area of substantial change. In every Census taken in Australia, a voluntary question on religious affiliation has been asked. Since 1933, the voluntary nature of the religion question has been specifically stated. In 1971, the instruction 'if no religion, write *none*' was introduced. The percentage who stated no

religion has increased from 0.4% of the population in 1911 to almost 17% at the 1996 Census. At the same time there has been a decrease in persons reported as Christian, from 96% in 1911 to 71% in 1996. Table 5.46 provides a summary of the major religious affiliations at each Census since 1911.

While Australia's population grew by 5.4% in the five years to 1996, stated affiliations to many religions grew at a far greater rate, and others declined.

Between the 1991 and 1996 Censuses there was a 35.5% increase in the number with no religion. Anglican affiliates decreased by 115,455 (2.9%) while Catholic affiliates increased by 192,299 (4.2%). However both groups decreased their proportion of total religious affiliation. Other Christian denominations which showed a decrease in affiliates were Presbyterian and Reformed (7.7%), Churches of Christ (4.2%), the Uniting Church (3.8%) and the Lutheran Church (0.4%).

The Christian groups that showed the largest percentage increases in affiliates were Pentecostal (16.0%) and Jehovah's Witness (11.6%).

#### 5.46 MAJOR RELIGIOUS AFFILIATIONS

Census year	Christianity				Religious affiliation			Total '000
	Anglican %	Catholic %	Other %	Total %	Other religions %	No religion %	Not stated/ inadequately described %	
1911	38.4	22.4	35.1	95.9	0.8	0.4	(a)2.9	<b>4 455.0</b>
1921	43.7	21.7	31.6	96.9	0.7	0.5	(a)1.9	<b>5 435.7</b>
1933	38.7	19.6	28.1	86.4	0.4	0.2	12.9	<b>6 629.8</b>
1947	39.0	20.9	28.1	88.0	0.5	0.3	11.1	<b>7 579.4</b>
1954	37.9	22.9	28.5	89.4	0.6	0.3	9.7	<b>8 986.5</b>
1961	34.9	24.9	28.4	88.3	0.7	0.4	10.7	<b>10 508.2</b>
1966	33.5	26.2	28.5	88.2	0.7	0.8	10.3	<b>11 599.5</b>
1971	31.0	27.0	28.2	86.2	0.8	6.7	6.2	<b>12 755.6</b>
1976	27.7	25.7	25.2	78.6	1.0	8.3	11.4	<b>13 548.4</b>
1981	26.1	26.0	24.3	76.4	1.4	10.8	11.4	<b>14 576.3</b>
1986	23.9	26.0	23.0	73.0	2.0	12.7	12.4	<b>15 602.2</b>
1991	23.8	27.3	22.9	74.0	2.6	12.9	10.5	<b>16 850.3</b>
1996	22.0	27.0	21.9	70.9	3.5	16.6	9.0	<b>17 752.8</b>

(a) Includes 'object to state'.

Source: Unpublished data, *Census of Population and Housing*.

## 5.47 RELIGIOUS AFFILIATION

	1991		1996		Growth
	No.	Proportion	No.	Proportion	
	'000	%	'000	%	%
Christianity					
Anglican	4 018.8	23.8	3 903.3	22.0	-2.9
Baptist	279.8	1.7	295.2	1.7	5.5
Catholic	4 606.7	27.3	4 799.0	27.0	4.2
Churches of Christ	78.3	0.5	75.0	0.4	-4.2
Jehovah's Witness	74.7	0.4	83.4	0.5	11.6
Lutheran	250.9	1.5	250.0	1.4	-0.4
Orthodox	474.9	2.8	497.0	2.8	4.7
Pentecostal	150.6	0.9	174.7	1.0	16.0
Presbyterian and Reformed	732.0	4.3	675.5	3.8	-7.7
Salvation Army	72.3	0.4	74.1	0.4	2.5
Uniting Church	1 387.7	8.2	1 334.9	7.5	-3.8
Other Christian	339.6	2.0	420.6	2.4	23.9
Buddhism	139.8	0.8	199.8	1.1	42.9
Hinduism	43.6	0.3	67.9	0.4	54.4
Islam	147.5	0.9	200.9	1.1	36.2
Judaism	74.3	0.4	79.8	0.4	7.6
Other religions	40.0	0.2	68.6	0.4	71.6
No religion	2 176.6	12.9	2 948.9	16.6	35.5
Not stated/inadequately described	1 762.1	10.5	1 604.7	9.0	-8.9
<b>Total</b>	<b>16 850.3</b>	<b>100.0</b>	<b>17 752.8</b>	<b>100.0</b>	<b>5.4</b>

Source: Unpublished data, 1991 and 1996 Censuses of Population and Housing.

Affiliates of other religions, while only 3.5% of the population in 1996, have shown the largest increases since the 1991 Census. Stated affiliation to Hinduism increased by 54.5%, to Buddhism by 42.9%, to Islam by 36.2% and to Judaism by 7.6%.

These changes partly resulted from trends in immigration. In 1996, 48% of those who had arrived in Australia since 1991 were affiliated to Christianity, 23% had no religion, 8% were affiliated to Buddhism, 8% to Islam and 1% to Judaism.

Table 5.47 shows the breakdown of religious groupings by the number and percentage of affiliates at the 1991 and 1996 Censuses, and the growth which occurred during that five-year period.

## Languages

English is Australia's national language. At the same time, Australia's cultural vitality is also a product of other languages spoken in the community. Over 200 languages are spoken, including 48 Australian Indigenous languages. In 1996, 2.5 million people (16% of the population five years and over) spoke a language other than English at home.

About 44,000 people spoke an Australian Indigenous language or an Australian creole (a language developed from pidgin English) in the home (table 5.48). Speakers of these languages made up 14% of Indigenous people and 0.3% of the Australian population. They were mostly located in relatively sparsely populated regions in the centre and north of Australia. Some 64% of Indigenous people in the Northern Territory spoke an Indigenous language or creole at home. The two languages with the most speakers were Arrernte, a central Australian language (3,468 speakers), and Dhuwal~Dhuwala, an Arnhem land language (3,219 speakers).

The leading five community languages, each with more than 100,000 speakers, were Italian, Greek, Cantonese, Arabic/Lebanese and Vietnamese. A further ten languages were spoken by more than 40,000 people. These 15 languages, together with Indigenous languages and creoles, accounted for 73% of all people speaking a language other than English in the home.

Greek, Italian and Arabic had the largest proportions of Australian-born speakers, partly reflecting a greater rate of maintenance of these languages among the second generation of these language groups. Languages mostly brought to Australia more recently, such as Mandarin, have a smaller proportion of Australian-born speakers.

**5.48 PERSONS(a) WHO SPOKE A LANGUAGE OTHER THAN ENGLISH AT HOME—1996**

	Males	Females	Persons	Proportion Australian born	Persons as a proportion of population
Language spoken at home	'000	'000	'000	%	%
Italian	183.6	183.7	367.3	40.7	2.3
Greek	130.3	128.7	259.0	46.7	1.6
Cantonese	91.6	98.5	190.1	12.9	1.2
Arabic/Lebanese	83.7	78.3	162.0	37.8	1.0
Vietnamese	67.3	66.7	134.0	12.6	0.8
German	46.3	50.3	96.7	18.9	0.6
Mandarin	42.7	44.6	87.3	6.4	0.5
Spanish	42.2	44.6	86.9	17.6	0.5
Macedonian	34.8	33.3	68.1	34.9	0.4
Tagalog (Filipino)	26.0	41.3	67.3	5.0	0.4
Croatian	33.7	33.0	66.7	32.4	0.4
Polish	28.3	32.7	61.0	16.2	0.4
Maltese	22.4	22.3	44.7	27.9	0.3
Indigenous languages & creoles	21.8	22.4	44.2	98.9	0.3
Turkish	21.7	20.6	42.2	31.3	0.3
Netherlandic (Dutch/Flemish)	18.3	21.9	40.2	12.4	0.3
All other(b)	323.5	333.4	656.9	15.2	4.1
<b>Total</b>	<b>1 218.3</b>	<b>1 256.3</b>	<b>2 474.6</b>	<b>26.0</b>	<b>15.5</b>

(a) Excludes children aged under five years. (b) Excludes inadequately described languages.

Source: 1996 Census of Population and Housing.

Within the group who spoke a language other than English at home, proficiency in English varied according to age and whether or not they were Australian-born. Over 92% of 5 to 24 year olds spoke English well or very well, compared with 59% of those aged 65 years and over (see table 5.49). The influence of birthplace was

evident in the consistently higher level of proficiency in English among those born in Australia, of whom 96% spoke English well or very well, compared with 82% overall. However, proficiency in speaking English well has increased slightly in all age groups since the 1991 Census.

**5.49 PROFICIENCY IN ENGLISH, Persons Who Spoke a Language Other than English at Home—1996**

Proficiency in English	Unit	Age group (years)				Total
		5–24	25–44	45–64	65 & over	
Total population speaking other than English at home						
Speaks English well/very well	%	92.2	84.6	74.9	59.3	<b>81.5</b>
Does not speak English well	%	6.9	13.8	21.6	28.7	<b>15.4</b>
Does not speak English at all	%	0.9	1.6	3.5	11.9	<b>3.1</b>
Total	%	100.0	100.0	100.0	100.0	<b>100.0</b>
Total(a)	no.	720 744	865 365	600 818	287 662	<b>2 474 589</b>
Australian-born population speaking other than English at home						
Speaks English well/very well	%	95.5	97.2	90.1	79.3	<b>95.6</b>
Does not speak English well	%	4.0	2.4	8.1	15.2	<b>3.8</b>
Does not speak English at all	%	0.5	0.4	1.8	5.4	<b>0.6</b>
Total	%	100.0	100.0	100.0	100.0	<b>100.0</b>
Total(b)	no.	386 155	213 885	30 553	8 240	<b>638 833</b>

(a) Includes 37,000 people who did not state how well they speak English. (b) Includes 14,000 people who did not state how well they spoke English.

Source: 1996 Census of Population and Housing.



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## Introduction

The information relating to labour presented in this chapter covers a wide range of aspects of economic and community life. Labour statistics are important economic indicators—changes in measures of employment, unemployment, earnings and other labour costs, overtime, job vacancies and industrial disputes provide insights into the performance of the economy and the effects of economic policy settings. Labour statistics are also very much about people—their entry into the labour force, their participation in it, whether they are employed or not, how much they earn, what other benefits they receive, how many hours they work, their mobility between jobs, the training they receive, and their retirement from employment.

This chapter first profiles the size and composition of the labour force, examining characteristics such as age, sex, labour force status and birthplace, and labour force experience.

It goes on to cover employed persons' demographic characteristics, occupation, industry, their hours worked and other characteristics of their working lives, including the incidence of underemployment and multiple jobholding, and people's career experience. Next come statistics on unemployment and unemployment rates, demographic characteristics of the unemployed, job search experience, and job vacancies.

The section on persons not in the labour force provides information about those persons who are marginally attached to the labour force, and therefore are potential participants in it. These include discouraged jobseekers.

The section dealing with employee earnings and labour costs presents statistics on labour costs, the wage cost index, average weekly earnings and the composition and distribution of earnings.

As well as wages and salaries, employees receive and employers pay for a range of additional benefits. Leave entitlements are widespread. Superannuation is an area that has seen marked change in recent years. Other employee benefits are set out in detail.

The chapter also examines hours worked, including overtime. Finally, statistics are presented on the extent, cause, duration and method of settlement of industrial disputes, and on trade union membership.

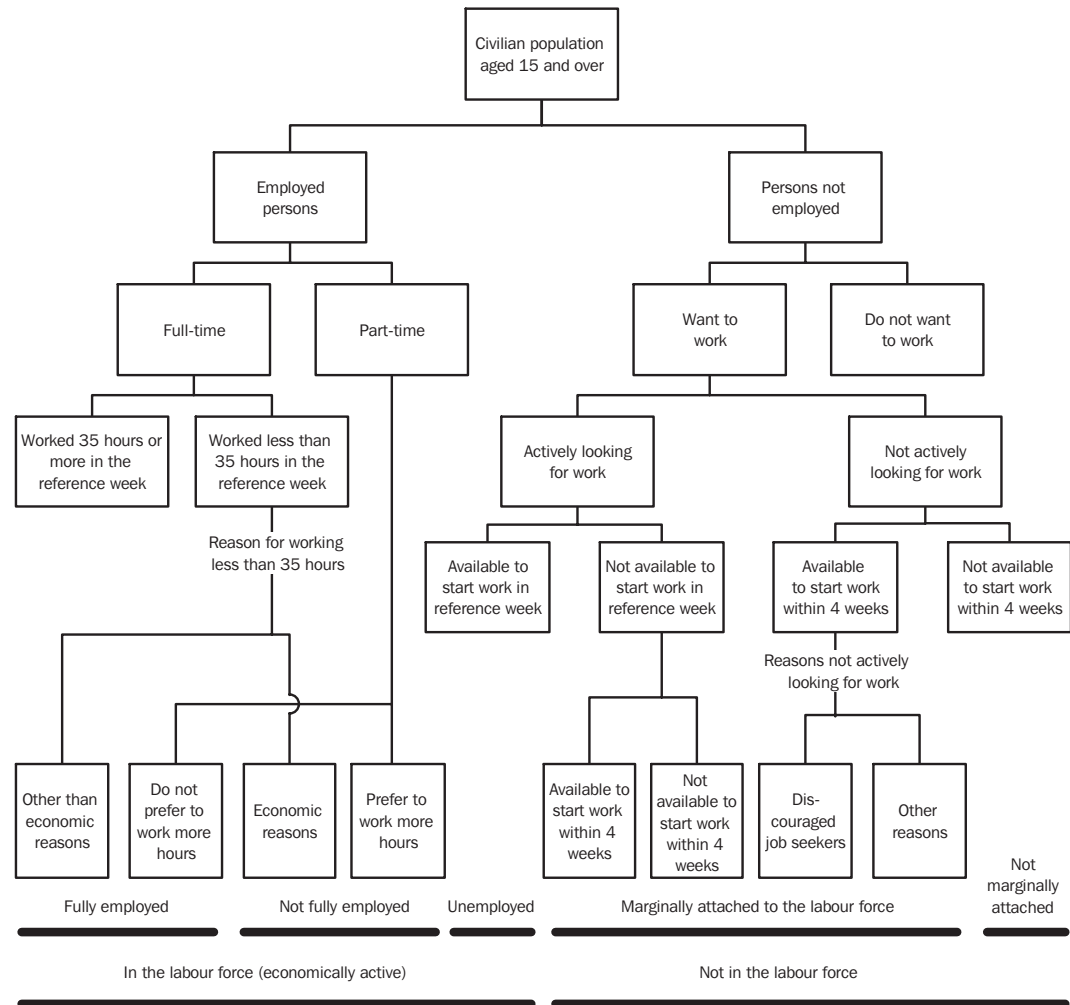
## The labour force

Fundamental to the measurement of employment and unemployment is the concept of the labour force. This is defined as those persons aged 15 and over who, during a particular week, are either employed or unemployed. The labour force represents the key official measure of the total supply of labour available to the labour market during a given week.

The conceptual framework for the Australian labour force is set out schematically in diagram 6.1.

This section presents summary statistics on the civilian labour force drawn from the ABS monthly Labour Force Survey and associated supplementary surveys. The surveys provide timely estimates of the labour force status of the Australian population, together with basic demographic data to enable various characteristics of the employed and unemployed to be analysed. The survey data present a range of characteristics such as whether persons are employed, unemployed or not in the labour force, together with demographic information (e.g. age, sex, marital status). Further details concerning the scope, coverage and survey methods of the labour force and supplementary surveys (as well as more detailed statistics) can be found in the publications listed in the bibliography.

6.1 THE AUSTRALIAN LABOUR FORCE FRAMEWORK



Characteristics of the labour force

The size and composition of the labour force are not static over time. Changes in the size of the labour force are caused by changes in labour force participation as well as changes in the population aged 15 and over.

The contribution to labour force growth from population increase was positive for all years from 1991–92 to 1998–99. The contribution due to

labour force participation was more variable. Following three years of positive contribution to labour force growth between 1993–94 and 1995–96, a negative impact of 0.3 percentage points was recorded in 1996–97 and 0.5 percentage points in 1997–98. In 1998–99 the contribution due to labour force participation was zero (table 6.2).

**6.2 LABOUR FORCE(a), Components of Change, Annual Average**

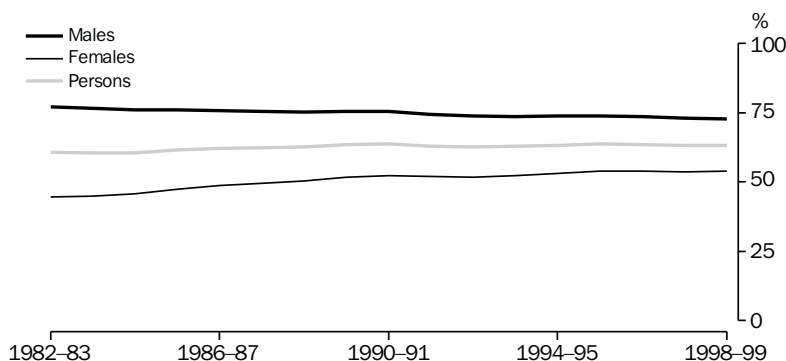
	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
	%	%	%	%	%	%
<b>MALES</b>						
Percentage change in labour force	0.9	1.5	1.5	0.9	0.9	1.3
Percentage points change due to						
Population growth	1.2	1.3	1.5	1.5	1.5	1.5
Labour force participation	-0.3	0.2	0.1	-0.6	-0.6	-0.3
<b>FEMALES</b>						
Percentage change in labour force	2.2	3.2	2.7	1.6	1.0	1.8
Percentage points change due to						
Population growth	1.2	1.3	1.6	1.5	1.4	1.4
Labour force participation	1.0	1.9	1.1	0.1	-0.4	0.4
<b>PERSONS</b>						
Percentage change in labour force	1.4	2.2	2.0	1.2	1.0	1.5
Percentage points change due to						
Population growth	1.2	1.3	1.5	1.5	1.4	1.5
Labour force participation	0.2	0.9	0.5	-0.3	-0.5	0.0

(a) Estimates from January 1995 to January 1999 have been revised to reflect revisions in the civilian population arising from the 1996 Census.

Source: Unpublished data, Labour Force Survey.

The participation rate is one of the most important indicators relating to the labour force. It represents the proportion of the population aged 15 and over who are in the labour force. Analysis of participation rates, particularly in terms of age, sex and marital status, provides the basis for monitoring changes in the size and composition of labour supply. The annual

average participation rate for males has generally been declining for some time, and in 1998–99 it was 72.8%. In contrast, the female participation rate increased from 51.9% in 1991–92 to 53.9% in 1996–97; it then fell marginally in 1997–98. In 1998–99 the rate has risen again to 53.9% (graph 6.3).

**6.3 PARTICIPATION RATES, Annual Average**

Source: Labour Force, Australia (6203.0).

Table 6.4 shows changes in labour force status between 1993–94 and 1998–99, for both males and females. Notable features include a steady increase in employment for both males and females. The male unemployment rate fell rapidly from 1993–94 to 1994–95. It remained relatively

steady for the next two years before falling to 7.8% in 1998–99. The female unemployment rate fell from 10.0% in 1993–94 to 8.0% in 1995–96. After rising in 1996–97, the rate then fell back to 8.0% in 1997–98 and then to 7.4% in 1998–99.

#### 6.4 CIVILIAN POPULATION AGED 15 AND OVER(a), Labour Force Status, Annual Average

	Unit	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
MALES							
Employed	'000	4 472.3	4 628.8	4 718.3	4 757.0	4 818.9	4 914.2
Unemployed							
Looking for full-time work	'000	500.0	414.4	400.0	400.9	386.0	357.5
Looking for part-time work	'000	49.0	51.1	53.4	58.5	59.4	58.6
Total unemployed	'000	549.0	465.5	453.4	459.4	445.5	416.1
Labour force	'000	5 021.3	5 094.3	5 171.7	5 216.4	5 264.3	5 330.3
Not in the labour force	'000	1 797.0	1 810.2	1 833.2	1 892.0	1 949.9	1 993.4
Civilian population	'000	6 818.3	6 904.6	7 004.9	7 108.4	7 214.3	7 323.7
Unemployment rate	%	10.9	9.1	8.8	8.8	8.5	7.8
Participation rate	%	73.6	73.8	73.8	73.4	73.0	72.8
FEMALES							
Employed	'000	3 308.3	3 463.8	3 582.9	3 623.7	3 677.5	3 766.5
Unemployed							
Looking for full-time work	'000	262.3	224.7	210.7	223.8	215.2	194.9
Looking for part-time work	'000	104.2	103.5	100.3	109.3	103.6	107.3
Total unemployed	'000	366.4	328.2	310.9	333.0	318.8	302.1
Labour force	'000	3 674.7	3 791.9	3 893.9	3 956.7	3 996.3	4 068.7
Not in the labour force	'000	3 360.5	3 335.1	3 343.8	3 390.3	3 454.2	3 486.6
Civilian population	'000	7 035.3	7 127.1	7 237.7	7 347.0	7 450.5	7 555.3
Unemployment rate	%	10.0	8.7	8.0	8.4	8.0	7.4
Participation rate	%	52.2	53.2	53.8	53.9	53.6	53.9

(a) Estimates from January 1995 to January 1999 have been revised to reflect revisions in the civilian population arising from the 1996 Census.

Source: Unpublished data, Labour Force Survey.

In 1998–99, the labour force participation rate for persons born overseas was 58.2%, compared with a participation rate of 66.6% for persons born in Australia. The participation rate for persons born overseas in other than main English-speaking countries was 54.1%. Of all overseas-born persons, those born in Oceania (which includes New Zealand) and Northern America had higher participation rates than persons born in Australia (table 6.5).

Table 6.6 provides an overview of labour force status of persons at June 1999, according to the

family relationship within households. Notable features include: for couple families with dependants present, 83.3% of husbands were employed full-time, compared with 25.6% of wives (with a further 34.3% of wives employed part-time). For lone parents with dependants, 53% of male lone parents were employed full-time compared with 22.3% of female lone parents. The unemployment rate for lone parents was higher than for husbands or wives.

Statistics on labour force status according to level of educational attainment are contained in *Chapter 10, Education*.

#### 6.5 CIVILIAN LABOUR FORCE, By Birthplace, Annual Average—1998–99

	Employed		Unemployed		Total labour force	Unemployment rate	Participation rate
	Full-time workers	Total	Looking for full-time work	Total			
	'000	'000	'000	'000	'000	%	%
Born in Australia	4 804.9	6 560.2	397.4	522.7	7 083.0	7.4	66.6
Born outside Australia							
Main English-speaking countries	708.3	921.0	53.5	66.4	987.4	6.7	64.8
Other countries	914.4	1 199.6	101.4	129.1	1 328.7	9.7	54.1
Oceania	201.8	257.1	21.6	26.9	284.1	9.5	74.1
Europe and the former USSR	865.3	1 134.3	68.2	83.0	1 217.2	6.8	54.2
The Middle East and North Africa	60.9	80.5	14.3	16.9	97.5	17.4	49.6
South-East Asia	193.2	251.0	26.3	33.5	284.5	11.8	62.0
North-East Asia	91.4	124.5	8.2	11.7	136.2	8.6	51.9
Northern America	39.4	50.2	2.5	3.1	53.3	5.8	71.1
Other	170.8	222.9	13.9	20.4	243.3	8.4	68.0
Total born outside Australia	1 622.7	2 120.5	155.0	195.5	2 316.0	8.4	58.2
<b>Total</b>	<b>6 427.6</b>	<b>8 680.8</b>	<b>552.4</b>	<b>718.2</b>	<b>9 399.0</b>	<b>7.6</b>	<b>63.2</b>

Source: Unpublished data, Labour Force Survey.



## 6.6 LABOUR FORCE STATUS, Relationship in Household(a)—June 1999

	Employed		Unemployed		Labour force	Not in labour force	Civilian population aged 15 and over	Unemployment rate	Participation rate
	Full-time	Total	Looking for full-time work	Total					
	'000	'000	'000	'000	'000	'000	'000	%	%
<b>MALES</b>									
Family member	3 486.3	4 005.8	227.7	268.1	4 273.9	1 476.7	5 750.6	6.3	74.3
Husband									
With dependants	1 707.9	1 817.5	80.9	85.9	1 903.4	147.2	2 050.5	4.5	92.8
Without dependants	1 140.3	1 276.0	40.9	43.7	1 319.7	879.9	2 199.6	3.3	60.0
<i>Total husband</i>	2 848.2	3 093.5	121.8	129.5	3 223.1	1 027.1	4 250.2	4.0	75.8
Lone parent									
With dependants	31.9	38.1	4.4	5.5	43.7	16.6	60.2	12.6	72.6
Without dependants	19.0	21.5	1.3	1.6	23.1	25.7	48.8	6.9	47.4
<i>Total lone parent</i>	50.8	59.6	5.7	7.1	66.7	42.2	109.0	10.6	61.2
Dependent student(b)	4.3	167.8	4.1	30.5	198.3	267.6	465.9	15.4	42.6
Non-dependent child(c)	519.9	602.3	84.3	87.2	689.4	81.6	771.1	12.6	89.4
Other family person	63.1	82.5	11.8	13.8	96.3	58.1	154.4	14.4	62.4
Non-family member	696.5	811.4	77.6	84.5	895.8	342.7	1 238.5	9.4	72.3
Lone person	365.7	420.0	38.8	41.3	461.3	262.4	723.7	9.0	63.7
Not living alone	330.7	391.4	38.8	43.2	434.6	80.3	514.8	9.9	84.4
<i>Total</i>	4 182.8	4 817.1	305.3	352.6	5 169.7	1 819.4	6 989.1	6.8	74.0
<b>FEMALES</b>									
Family member	1 632.5	3 125.3	129.1	217.6	3 343.0	2 585.8	5 928.8	6.5	56.4
Wife									
With dependants	505.3	1 183.7	33.6	60.1	1 243.7	733.0	1 976.7	4.8	62.9
Without dependants	658.0	1 021.2	27.2	36.7	1 057.9	1 115.2	2 173.1	3.5	48.7
<i>Total wife</i>	1 163.3	2 204.8	60.8	96.8	2 301.6	1 848.2	4 149.8	4.2	55.5
Lone parent									
With dependants	108.3	227.4	22.4	42.5	269.9	214.7	484.7	15.7	55.7
Without dependants	37.2	55.1	5.5	5.7	60.9	112.8	173.7	9.4	35.0
<i>Total lone parent</i>	145.5	282.6	27.9	48.2	330.8	327.6	658.3	14.6	50.2
Dependent student(b)	4.2	207.5	3.5	31.0	238.5	238.7	477.2	13.0	50.0
Non-dependent child(c)	282.6	372.7	32.2	34.9	407.7	51.8	459.4	8.6	88.7
Other family person	36.9	57.7	4.6	6.7	64.4	119.7	184.1	10.4	35.0
Non-family member	421.4	565.3	39.7	48.7	614.0	644.1	1 248.0	7.9	48.8
Lone person	208.9	280.9	19.5	23.4	304.3	567.2	871.5	7.7	34.9
Not living alone	212.4	284.4	20.2	25.3	309.7	76.8	386.6	8.2	80.1
<i>Total</i>	2 053.8	3 690.6	168.8	266.4	3 957.0	3 229.9	7 186.8	6.7	55.1
<b>PERSONS</b>									
Family member	5 118.8	7 131.1	356.7	485.8	7 616.8	4 062.6	11 679.4	6.4	65.2
Husband or wife									
With dependants	2 213.2	3 001.2	114.5	145.9	3 147.1	880.2	4 027.3	4.6	78.1
Without dependants	1 798.2	2 297.2	68.1	80.4	2 377.6	1 995.1	4 372.7	3.4	54.4
<i>Total husband or wife</i>	4 011.5	5 298.4	356.7	226.3	5 524.7	2 875.3	8 400.0	4.1	65.8
Lone parent									
With dependants	140.1	265.6	26.8	48.0	313.6	231.3	544.8	15.3	57.6
Without dependants	56.3	76.6	6.8	7.3	83.9	138.5	222.4	8.7	37.7
<i>Total lone parent</i>	196.4	342.2	33.6	55.3	397.5	369.8	767.3	13.9	51.8
Dependent student(b)	8.5	375.3	7.5	61.5	436.8	506.3	943.1	14.1	46.3
Non-dependent child(c)	802.5	975.0	116.6	122.1	1 097.1	133.4	1 230.5	11.1	89.2
Other family person	100.0	140.2	16.4	20.6	160.7	177.8	338.5	12.8	47.5
Non-family member	1 117.9	1 376.7	117.3	133.2	1 509.8	986.7	2 496.6	8.8	60.5
Lone person	574.7	700.8	58.3	64.7	765.5	829.7	1 595.2	8.5	48.0
Not living alone	543.2	675.8	59.0	68.5	744.3	157.1	901.4	9.2	82.6
<i>Total</i>	6 239.7	8 507.7	474.1	618.9	9 126.7	5 049.3	14 176.0	6.8	64.4

(a) Civilians who were residents of households where family status was determined. (b) Excludes persons aged 20–24 attending school. Also excludes sons or daughters aged 15–24 who are classified as husbands, wives or lone parents. (c) Aged 15 and over.

Source: Labour Force, Australia (6203.0).

## Labour force experience

There were approximately 13,049,300 civilian Australians aged 15–69 years in February 1999.

An estimated 10,077,900 persons aged 15–69 were in the labour force at some time during the year ending February 1999. That is, 77% of Australians aged 15–69 years either worked or looked for work at some time during the year.

Some 85% of males aged 15–69 participated in the labour force at some time in the 12 months up to February 1999. This has remained relatively steady for all years since 1991. For females, the proportion participating over the previous 12 months increased steadily from 65% in 1989 to 70% in 1997. It was 69% in 1999. Persons aged 25–44 years had the highest annual participation rate for the year ending February 1999 (Graph 6.7).

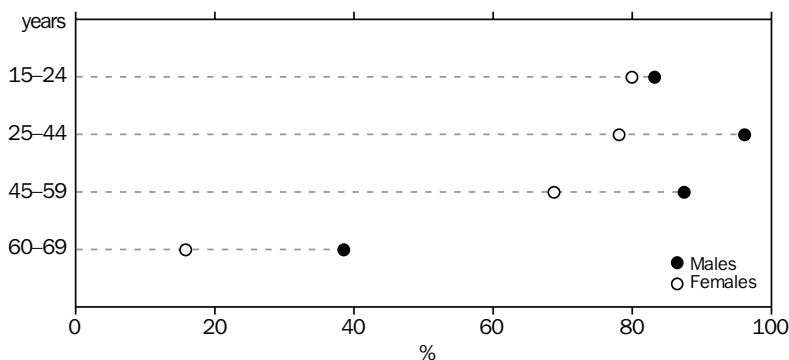
There were 9,420,000 persons who worked at some time during the year ending February 1999. Of these, 56% were male and 44% were female. Some 3,748,000 males worked for the entire 52 weeks, compared to 2,533,100 females.

Of those persons who worked at some time during the year ending February 1999, 80% of males and 48% of females worked all weeks full-time. In contrast, 12% of males and 41% of females worked all weeks part-time. A further 8% of males and 10% of females worked a combination of full-time and part-time.

Of the 1,777,500 persons who looked for work at some time, 48% looked for work for 1–12 weeks; 28% looked for 13–38 weeks; 8% looked for 39–51 weeks; and 15% looked for the whole year.

An estimated 5,822,300 persons were not in the labour force at some time during the year ending February 1999. Of these, 2,182,900 were male and 3,639,400 were female. Approximately half (51%) of the people in this group spent no time in the labour force during the year.

**6.7 LABOUR FORCE PARTICIPATION, By Age—Year ending February 1999**



Source: *Labour Force Experience, Australia* (6206.0).

## Employment

Broadly, people are considered to be employed if they are doing any paid work at all. Those people who have a job or a business, but were absent from work in the reference week, are also considered to be employed. Employment statistics are presented according to the demographic characteristics of employed persons, their occupation and industry, hours worked and whether they are full-time or part-time workers. Data for employees and whether they work in the private or government sector are also included in this section.

By relating employment levels to population levels, the magnitude of job growth in the economy can be evaluated. The measure relating these two levels is the employment/population

ratio. Its usefulness lies in the fact that, while movements in the employment level reflect net changes in the levels of persons holding jobs, movements in the ratio reflect net changes in the number of persons employed relative to changes in the size of the population. The overall employment/population ratio rose between 1993–94 and 1995–96, but has been relatively steady in recent years and was 58.3% in 1998–99 (table 6.8).

The age groups showing the most notable increases over recent years have been 15–19 year olds (to 47.2% in 1998–99), 20–24 year olds (to 72.9%) and 55–59 year olds (to 54.8%). For males, the highest ratio in 1998–99 was for those aged 35–44 (86.9%), while for females, those aged 20–24 showed the highest proportion employed (69.3%).

**6.8 EMPLOYED PERSONS(a), Employment/Population Ratios(b)**

	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
Age group (years)	%	%	%	%	%	%
<b>MALES</b>						
15–19	42.8	45.8	46.1	46.3	45.3	46.1
20–24	72.9	76.1	76.1	75.3	74.8	76.4
25–34	83.6	84.8	86.0	85.5	85.6	85.6
35–44	85.9	86.3	87.0	86.4	86.8	86.9
45–54	82.3	83.6	83.5	82.8	82.0	82.8
55–59	64.6	66.1	66.0	66.5	66.5	67.6
60–64	41.2	43.1	42.7	42.2	42.8	43.1
Over 64	8.8	9.5	9.4	9.5	10.1	9.4
<b>Total</b>	<b>65.6</b>	<b>67.0</b>	<b>67.4</b>	<b>66.9</b>	<b>66.8</b>	<b>67.1</b>
<b>FEMALES</b>						
15–19	42.3	47.2	47.7	47.1	46.7	48.3
20–24	66.8	68.8	69.8	68.5	68.2	69.3
25–34	60.4	62.3	62.9	62.8	64.2	64.0
35–44	64.7	66.4	67.6	67.1	65.7	66.1
45–54	61.4	62.7	64.0	64.3	64.9	66.2
55–59	35.3	36.7	39.0	40.1	40.0	41.6
60–64	15.4	15.7	17.1	18.0	18.4	18.0
Over 64	2.6	2.4	2.7	2.8	2.9	3.0
<b>Total</b>	<b>47.0</b>	<b>48.6</b>	<b>49.5</b>	<b>49.3</b>	<b>49.4</b>	<b>49.9</b>
<b>PERSONS</b>						
15–19	42.5	46.5	46.9	46.7	46.0	47.2
20–24	69.8	72.5	73.0	71.9	71.5	72.9
25–34	71.9	73.5	74.4	74.1	74.8	74.7
35–44	75.2	76.3	77.2	76.7	76.2	76.4
45–54	72.1	73.4	73.9	73.7	73.5	74.6
55–59	50.2	51.6	52.7	53.5	53.5	54.8
60–64	28.3	29.4	29.9	30.0	30.6	30.5
Over 64	5.2	5.5	5.6	5.7	6.1	5.8
<b>Total</b>	<b>56.2</b>	<b>57.7</b>	<b>58.3</b>	<b>58.0</b>	<b>57.9</b>	<b>58.3</b>

(a) Estimates from January 1995 to January 1999 have been revised to reflect revisions in the civilian population arising from the 1996 Census. (b) The employment/population ratio for any group is the number of employed persons expressed as a percentage of the civilian population aged 15 and over in the same group.

Source: Unpublished data, Labour Force Survey.

Information for employed persons is also shown according to their status in employment (i.e. employers, own-account workers, employees and contributing family workers). Following falls in 1996–97, the number of employers and own-account workers rose in 1997–98 to 357,300 and 855,700 respectively. However, these groups fell once again in 1998–99 to 349,800 and 822,500 respectively. The number of employees has increased since 1993–94 to 7,399,700 in 1998–99. Estimates of the number of contributing family workers fell significantly in 1997–98, following four years of relative stability between 1993–94 and 1996–97, and rose slightly in 1998–99 (table 6.9).

Full-time workers are those who worked 35 hours or more during the reference week of the Labour Force Survey, or who usually work 35 hours or more each week. Part-time workers are those who usually work less than 35 hours a week and who did so during the reference week. In 1998–99 there were 4,298,400 males employed full-time (87.5% of male employment). The number of females employed full-time was 2,129,200 (56.5% of female employment). For males, part-time work is most prevalent among the younger (aged 15–24) and older (aged 55 and over) age groups, while for females, the incidence of part-time work is more evenly spread across age groups (table 6.10).

#### 6.9 EMPLOYED PERSONS(a), Status in Employment, Annual Average(b)

	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
	'000	'000	'000	'000	'000	'000
Employers	348.3	355.6	363.9	338.9	357.3	349.8
Own-account workers	829.0	822.9	849.1	819.5	855.7	822.5
Employees	6 500.2	6 801.7	7 001.1	7 121.1	7 183.1	7 399.7
Contributing family workers	77.8	77.2	75.0	75.2	65.4	66.3
<b>Total</b>	<b>7 755.2</b>	<b>8 057.4</b>	<b>8 289.2</b>	<b>8 354.7</b>	<b>8 461.4</b>	<b>8 638.4</b>

(a) Estimates from January 1995 to January 1999 have been revised to reflect revisions in the civilian population arising from the 1996 Census. (b) Annual averages based on quarterly data.

Source: Unpublished data, Labour Force Survey.

#### 6.10 EMPLOYED PERSONS, Full-time and Part-time Workers by Age, Annual Average(a)—1998–99

	Age group (years)								
	15–19	20–24	25–34	35–44	45–54	55–59	60–64	Over 64	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
<b>MALES</b>									
Full-time workers	144.8	417.2	1 130.4	1 180.2	973.8	274.9	125.5	51.6	<b>4 298.4</b>
Part-time workers	167.5	103.9	88.1	72.8	70.8	34.2	35.5	43.1	<b>615.8</b>
<b>Total</b>	<b>312.3</b>	<b>521.1</b>	<b>1 218.5</b>	<b>1 253.0</b>	<b>1 044.6</b>	<b>309.1</b>	<b>161.0</b>	<b>94.7</b>	<b>4 914.2</b>
<b>FEMALES</b>									
Full-time workers	78.8	302.1	618.6	515.7	479.2	96.3	27.0	11.6	<b>2 129.2</b>
Part-time workers	232.7	157.8	302.5	448.3	341.5	87.4	40.4	26.7	<b>1 637.3</b>
<b>Total</b>	<b>311.5</b>	<b>459.9</b>	<b>921.1</b>	<b>964.0</b>	<b>820.7</b>	<b>183.7</b>	<b>67.4</b>	<b>38.3</b>	<b>3 766.5</b>

(a) Annual averages based on monthly data.

Source: Unpublished data, Labour Force Survey.

Tables 6.11 and 6.12 provide information on the number of employed persons and the proportion employed, by industry and occupation. In 1998–99, the Retail trade and Manufacturing industries were the two largest employing industries, followed by Property and business services, and Health and community services. Manufacturing was the largest employer of males, with 16.4% of all male workers in that industry. The greatest number of female workers (17.7%)

were in Retail trade, followed closely by Health and community services (16.8%). The occupation groups containing the largest number of employed persons were Professionals with 17.9% of persons, 16.4% of males and 19.8% of females; Intermediate Clerical, sales and service workers with 17.1% of persons, 8.4% of males and 28.4% of females; and Tradespersons and related workers with 13.3% of persons, 21.3% of males but only 3.0% of females.

### 6.11 EMPLOYED PERSONS BY INDUSTRY(a), Annual Average(b)—1998–99

Industry	Males		Females		Persons	
	No.	Proportion employed	No.	Proportion employed	No.	Proportion employed
	'000	%	'000	%	'000	%
Agriculture, forestry and fishing	290.1	5.9	131.7	3.5	421.8	4.9
Mining	71.7	1.5	7.9	0.2	79.6	0.9
Manufacturing	801.3	16.4	281.1	7.5	1 082.5	12.5
Electricity, gas and water supply	53.1	1.1	11.7	0.3	64.7	0.7
Construction	551.7	11.3	82.4	2.2	634.1	7.3
Wholesale trade	347.7	7.1	159.0	4.2	506.7	5.9
Retail trade	635.2	13.0	663.3	17.7	1 298.5	15.0
Accommodation, cafes and restaurants	185.8	3.8	225.4	6.0	411.3	4.8
Transport and storage	308.4	6.3	100.3	2.7	408.7	4.7
Communication services	100.7	2.1	50.7	1.4	151.4	1.8
Finance and insurance	143.7	2.9	176.1	4.7	319.9	3.7
Property and business services	540.1	11.1	404.9	10.8	945.0	10.9
Government administration and defence	189.3	3.9	156.0	4.2	345.3	4.0
Education	196.4	4.0	407.1	10.9	603.5	7.0
Health and community services	188.9	3.9	628.5	16.8	817.4	9.5
Cultural and recreational services	106.6	2.2	102.6	2.7	209.3	2.4
Personal and other services	176.0	3.6	162.7	4.3	338.7	3.9
<b>All industries</b>	<b>4 887.0</b>	<b>100.0</b>	<b>3 751.4</b>	<b>100.0</b>	<b>8 638.4</b>	<b>100.0</b>

(a) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). (b) Annual average of quarterly data.

Source: Unpublished data, Labour Force Survey.

### 6.12 EMPLOYED PERSONS BY OCCUPATION(a), Annual Average(b)—1998–99

Occupation	Males		Females		Persons	
	No.	Proportion employed	No.	Proportion employed	No.	Proportion employed
	'000	%	'000	%	'000	%
Managers and administrators	486.7	10.0	145.1	3.9	631.8	7.3
Professionals	802.0	16.4	743.7	19.8	1 545.7	17.9
Associate professionals	577.0	11.8	337.7	9.0	914.7	10.6
Tradespersons and related workers	1 038.9	21.3	110.9	3.0	1 149.9	13.3
Advanced clerical and service workers	45.1	0.9	337.2	9.0	382.2	4.4
Intermediate clerical, sales and service workers	408.1	8.4	1 066.3	28.4	1 474.4	17.1
Intermediate production and transport workers	688.5	14.1	101.7	2.7	790.2	9.1
Elementary clerical, sales and service workers	302.4	6.2	587.3	15.7	889.7	10.3
Labourers and related workers	538.2	11.0	321.5	8.6	859.8	10.0
<b>All occupations</b>	<b>4 887.0</b>	<b>100.0</b>	<b>3 751.4</b>	<b>100.0</b>	<b>8 638.4</b>	<b>100.0</b>

(a) Classified according to the Australian Standard Classification of Occupations (ASCO), Second Edition. (b) Annual average of quarterly data.

Source: Unpublished data, Labour Force Survey.

Tables 6.13 and 6.14, and graph 6.15, provide various views of the distribution of wage and salary earners between industries, between the private and public sectors, and across the States and Territories. These statistics are obtained from the Survey of Employment and Earnings, a survey of employers. They are complementary to, but not compatible with, those from the household-based Labour Force Survey. While the latter provides better estimates of overall employment movements at the national and State/Territory levels, the former provides dissections for industry by public/private sector.

Estimates of the number of wage and salary earners in the private and public sectors between

February 1997 and February 1999 are shown in table 6.13. During this period, the number of wage and salary earners in the private sector increased by 8.2% to 5,744,900, while in the public sector the number declined by 2.1% to 1,427,700. The major part of the public sector decline occurred in the Commonwealth government sector, which fell by 14.5% to 248,700, the largest annual fall occurring between February 1997 and February 1998.

The privatisation of public trading and financial enterprises in recent years has influenced the number of employees in both Commonwealth and State government sectors, primarily in Electricity, gas and water supply, Transport and storage, and Finance and insurance.

**6.13 WAGE AND SALARY EARNERS, Industry and Private/Public Sector**

Industry	Private sector			Public sector		
	Feb 1997	Feb 1998	Feb 1999	Feb 1997	Feb 1998	Feb 1999
	'000	'000	'000	'000	'000	'000
Agriculture, forestry and fishing(a)	..	..	..	5.5	5.7	6.1
Mining	80.2	76.1	72.3	2.1	2.0	1.7
Manufacturing	937.6	932.3	917.0	4.8	4.5	3.9
Electricity, gas and water supply	9.6	10.0	9.6	53.7	45.0	42.9
Construction	315.5	318.3	342.7	17.1	17.0	20.9
Wholesale trade	460.8	465.3	520.2	1.6	1.6	1.1
Retail trade	988.4	991.6	1 056.3	0.3	0.3	* 0.1
Accommodation, cafes and restaurants	379.2	379.1	397.3	0.5	0.5	0.8
Transport and storage	230.4	214.8	232.7	68.4	56.4	54.9
Communication services	25.3	22.7	31.5	114.1	98.1	92.6
Finance and insurance	268.4	260.3	286.2	9.4	6.5	7.5
Property and business services	677.8	723.4	855.4	33.6	26.9	28.9
Government administration and defence(b)	..	..	..	339.1	350.7	336.4
Education	161.3	178.2	176.3	395.8	397.9	403.8
Health and community services	462.8	468.4	492.1	300.3	308.8	310
Cultural and recreational services	139.1	151.3	164.7	26.1	24.5	26.4
Personal and other services	170.8	164.7	190.5	85.8	87.1	89.6
<b>All industries</b>	<b>5 307.3</b>	<b>5 356.5</b>	<b>5 744.9</b>	<b>1 457.8</b>	<b>1 433.7</b>	<b>1 427.7</b>

(a) Out of scope of survey for private sector. (b) Excludes members of Australia's permanent defence forces and employees of its embassies, consulates etc. overseas.

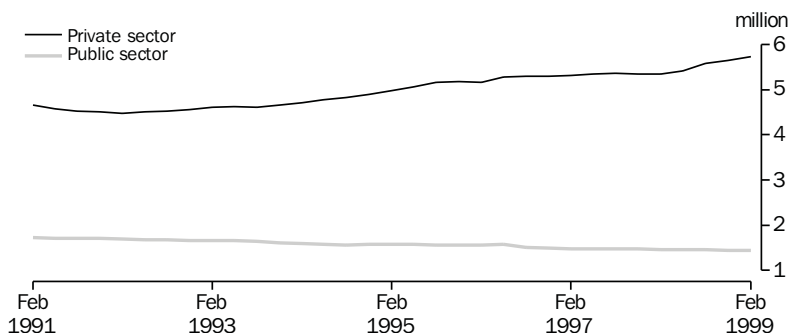
Source: *Wage and Salary Earners, Australia* (6248.0).

**6.14 WAGE AND SALARY EARNERS, Private/Public Sector—February 1999**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Sector	'000	'000	'000	'000	'000	'000	'000	'000	'000
Private	2 029.7	1 505.2	983.6	409.4	574.6	115.3	47.8	79.3	5 744.9
Public									
Commonwealth	70.7	53.9	32.8	16.5	17.7	5.9	3.6	47.4	248.7
State	343.5	216.6	214.7	86.9	114.3	29.9	15.2	17.8	1 038.9
Local	45.0	31.5	36.0	8.0	13.5	3.7	2.5	..	140.1
Total	459.2	302.0	283.5	111.5	145.5	39.5	21.3	65.2	1 427.7
<b>Total</b>	<b>2 488.9</b>	<b>1 807.2</b>	<b>1 267.1</b>	<b>520.9</b>	<b>720.1</b>	<b>154.8</b>	<b>69.1</b>	<b>144.5</b>	<b>7 172.6</b>

Source: *Wage and Salary Earners, Australia* (6248.0).

**6.15 WAGE AND SALARY EARNERS, By Sector,  
Trend Estimates**



Source: *Wage and Salary Earners, Australia* (6248.0).

### Underemployed workers

At its broadest level, underemployment is a preference to work more hours by people who are not working full-time hours. The number of underemployed workers is an important indicator of labour market performance. It highlights the unsatisfied aspirations of many workers for adequate work and greater earnings.

In September 1998 there were 8,677,200 employed persons aged 15 and over. Of these, 502,800 (6%) usually worked part-time and wanted to work more hours, and less than 1% usually worked full-time but worked part-time in the survey reference week for economic reasons (table 6.16).

Of all part-time workers who wanted more hours, 60% were female. Some 63% of part-time workers who wanted more hours reported that they would like to work full-time hours.

Over half (56%) of all persons working part-time and wanting to work more hours were aged less than 35 years. In comparison, 42% of fully employed workers were aged less than 35 years. The 15–19 and 20–24 year age groups contributed 17% and 19% respectively of all persons working part-time and wanting more hours. These groups made up only 6% and 11% respectively of fully employed workers.

The median duration of the current period of insufficient work for persons working part-time and wanting to work more hours was 25 weeks for males and 26 weeks for females. Duration generally increased with age for both males and females. For females, the median duration ranged from 20 weeks for those aged 15–19 years, to 104 weeks for those aged 55–59 years. For males, the median duration ranged from 12 weeks for those aged 20–24 years, to 80 weeks for those aged 45–54 years.

**6.16 UNDEREMPLOYMENT STATUS OF EMPLOYED PERSONS—September 1998**

	Males	Females	Persons
	'000	'000	'000
Fully employed workers	4 660.3	3 471.3	8 131.6
Full-time workers	4 284.2	2 195.0	6 479.2
Part-time workers	376.1	1 276.3	1 652.4
Usually work full-time but worked part-time for economic reasons	32.9	10.0	42.8
Usually work part-time and want more hours	202.3	300.5	502.8
Usually work part-time and want more part-time hours	48.0	135.9	183.9
Usually work part-time and want full-time hours	154.2	164.7	318.9
<b>Employed persons</b>	<b>4 895.5</b>	<b>3 781.8</b>	<b>8 677.2</b>

Source: *Underemployed Workers, Australia* (6265.0).

There were 468,600 persons working part-time and wanting to work more hours, who were looking for, or available to start work for more hours. Some 24% of these workers wanted less than 10 extra hours of work each week, while 40% wanted 10–19 extra hours. The average number of extra hours wanted was 16 (18 hours for males, 15 hours for females). The average number of extra hours wanted was higher for males than females in every age group except those aged 65 years and over.

As graph 6.17 shows, of those who usually worked 21–34 hours, the majority preferred 10–19 extra hours per week (62%). Of those who usually worked 11–20 hours the most common preference was to work 20 or more extra hours (48%). Of those who usually worked 10 hours or less a week, about half (49%) wanted up to 19 extra hours.

### Multiple jobholding

In July 1998, there were 411,600 multiple jobholders, representing 4.8% of all employed persons. More females than males held multiple jobs (214,900 compared to 196,800) (table 6.18). To be classified as a multiple jobholder a person had to be a wage and salary earner in at least one of their jobs.

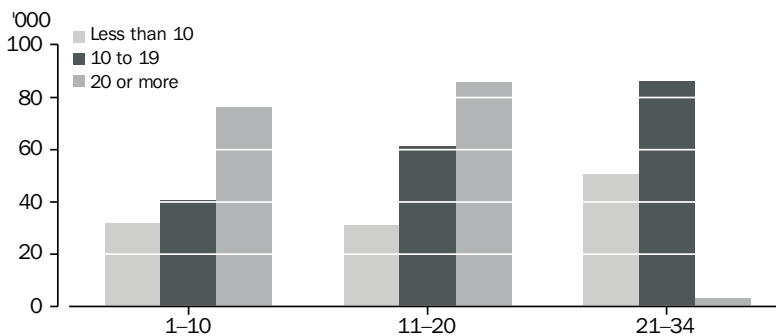
Multiple jobholders tended to have second jobs in the service industries. Retail trade was the industry with the largest proportion of multiple jobholders (16%), followed by Property and business services, and Health and community services (both with 12%). Accommodation, cafes and restaurants was the next largest with 11% of multiple jobholders.

The second job of the majority of female multiple jobholders was in Health and community services (18%). Retail trade, and Accommodation, cafes and restaurants accounted for another 16% and 13% of second jobs, respectively. Few females (only 4%) had second jobs in Agriculture, forestry and fishing, a popular industry for male multiple jobholders.

Retail trade (17%), Agriculture, forestry and fishing (14%), and Property and business services (13%), accounted for almost half of all second jobs of male multiple jobholders.

Persons aged 35–44 years made up the largest age group of multiple jobholders (26%) followed by those aged 25–34 years (24%). Persons aged 20–24 years made up 14% of multiple jobholders and had the highest proportion (6%) of employed persons with multiple jobs. Only 5% of multiple jobholders were aged 55 years and over.

**6.17 USUALLY WORK PART-TIME: USUAL HOURS WORKED AND PREFERRED NUMBER OF EXTRA HOURS—September 1998**



Source: *Underemployed Workers, September 1998* (6265.0).



6.18 MULTIPLE JOBHOLDERS, Selected Characteristics—July 1998

Characteristics	Males '000	Females '000	Persons '000	Proportion of employed persons %
<b>Marital status</b>				
Married	125.1	124.2	249.3	4.6
Not married	71.6	90.6	162.3	5.1
<b>Birthplace &amp; period of arrival</b>				
Born in Australia	159.6	175.2	334.8	5.2
Born outside Australia				
Born in main English speaking countries	19.2	25.0	44.2	4.7
Born in other countries	18.0	14.6	32.6	2.7
Total born outside Australia	37.2	39.6	76.8	3.6
Arrived before 1981	19.1	21.4	40.5	3.3
Arrived 1981–1990	11.0	12.8	23.7	3.9
Arrived 1991 to survey date	7.2	5.4	12.6	4.0
<b>Age (years)</b>				
15–19	13.3	17.2	30.5	5.1
20–24	23.6	34.5	58.0	5.9
25–34	54.3	44.5	98.9	4.6
35–44	47.1	61.1	108.3	5.0
45–54	46.4	47.5	93.9	5.1
55 and over	12.1	10.0	22.1	2.6
<b>Total</b>	<b>196.8</b>	<b>214.9</b>	<b>411.6</b>	<b>4.8</b>

Source: Unpublished Data, Multiple Jobholding, Australia.

## Career experience

In November 1998, 77% of Australia's 7,006,600 employees had worked for their current employer for one year or more. Of these, almost all (95%) had experienced some change in their work in the previous 12 months.

The most common changes reported were: more responsibility (38%), new, different or extra duties (36%), and changed hours (17%). Other changes included change of location (9%), transfer (7%) and promotion (7%) (table 6.19).

For employees who had been with their current employer for one year or more, being given 'more responsibility' was the most common change reported by employees in all age groups except those aged 55 years and over. Full-time employees were more likely to be promoted (8%) than part-time employees (2%). Similarly, younger employees were more likely to be promoted than older persons. Of employees aged 20–34, 11% had been promoted compared to just 2% for employees aged 55 and over. The most common change for part-time employees was a 'change in hours'. More than one-quarter (27%) of part-time employees had a 'change in hours' compared to only 14% of full-time employees. An estimated 44% received some kind of education or formal training. These employees had higher rates of promotion and job transfer than those not receiving any education or formal training.

Some 43% of employees had their work performance formally assessed by their employer.

In November 1998, 182,100 (3%) employees had taken a break of six months or more from their current employment. Two-thirds of these employees were women, of whom 62% had taken a break from work for family reasons. More than half (51%) of those women who had a break for family reasons had a child or children under 12 years of age.

## Unemployment

In the Labour Force Survey, people are considered to be unemployed if they satisfy three criteria: they are not employed, they are available for work, and they are taking active steps to find work.

Two important measures of unemployment are the number of persons unemployed and the unemployment rate. The unemployment rate is defined as the number of unemployed persons expressed as a percentage of the labour force.

The number of unemployed persons in annual average terms peaked at 940,500 in 1992–93 before falling to 764,300 in 1995–96. After a rise in 1996–97, the number of unemployed persons fell to 718,200 in 1998–99 (table 6.20).

### 6.19 EMPLOYEES WHO HAVE WORKED WITH THEIR CURRENT EMPLOYER FOR ONE YEAR OR MORE, Career Experience—November 1998

Characteristics	Full-time		Part-time		All employees		Total
	Males	Females	Males	Females	Males	Females	
Last twelve months							
Promoted(a)	210.5	140.1	*3.1	24.4	213.6	164.5	378.2
Transferred(a)	218.4	151.1	*5.0	46.5	223.3	197.5	420.9
Changes in hours	385.9	207.4	55.8	265.3	441.8	472.7	914.5
Changed work location	285.6	122.5	19.7	76.4	305.4	198.8	504.2
Different duties	982.9	646.7	45.6	270.0	1 028.5	916.7	1 945.2
More responsibility	1 085.3	658.6	48.3	256.3	1 133.7	914.9	2 048.5
None of the above	181.6	76.5	*6.1	32.1	187.6	108.6	296.3
Total	2 752.8	1 438.6	247.4	957.6	3 000.3	2 396.2	5 396.5
Length of time with current employer							
1 and under 3 years	689.9	406.4	132.9	349.7	822.8	756.2	1 579.0
3 and under 5 years	496.2	303.7	53.0	202.4	549.2	506.1	1 055.3
5 and under 10 years	609.5	360.7	37.1	218.1	646.6	578.8	1 225.4
10 years or more	957.3	367.8	24.4	187.3	981.7	555.1	1 536.8

(a) Excludes persons working in their own limited liability company (i.e. owner-managers).

Source: *Career Experience, Australia* (6254.0).

### 6.20 UNEMPLOYED PERSONS(a), Duration of Unemployment, Annual Average

Duration of unemployment (weeks)	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
NUMBER OF UNEMPLOYED ('000)						
Under 4	124.5	123.1	129.0	135.2	126.4	129.4
4 and under 13	169.6	159.2	167.4	177.9	161.1	154.5
13 and under 26	127.2	110.5	116.3	115.5	108.1	97.8
26 and under 52	159.3	127.6	126.1	132.5	126.9	107.3
52 and over	334.8	273.3	225.6	231.4	241.7	229.2
Total	915.4	793.7	764.3	792.4	764.2	718.2
% OF TOTAL UNEMPLOYMENT						
Under 4	13.6	15.5	16.9	17.1	16.5	18.0
4 and under 13	18.5	20.1	21.9	22.4	21.1	21.5
13 and under 26	13.9	13.9	15.2	14.6	14.1	13.6
26 and under 52	17.4	16.1	16.5	16.7	16.6	14.9
52 and over	36.6	34.4	29.5	29.2	31.6	31.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) Estimates from January 1995 to January 1999 have been revised to reflect revisions in the civilian population arising from the 1996 Census.

Source: *Unpublished data, Labour Force Survey*.

The number of persons unemployed for 52 weeks or more (the 'long-term unemployed') fell from 334,800 in 1993–94 to 225,600 in 1995–96. In 1997–98 the number of long-term unemployed rose to 241,700, but fell again to 229,200 in 1998–99. Of all unemployed persons in 1998–99, 31.9% had been unemployed for 52 weeks or more, compared with 36.6% in 1993–94.

The annual average unemployment rate for all persons peaked at 11.0% in 1992–93. The rate has generally been falling since then, to 7.6% in 1998–99. For males, the rate fell to 7.8% in 1998–99 from a peak of 11.7% in 1992–93. The female rate fell from 10.0% in 1993–94 to 8.0% in 1995–96. Following a rise to 8.4% in 1996–97, the rate fell to 7.4% in 1998–99 (graph 6.21).

## 6.21 UNEMPLOYMENT RATE, Annual Average



Source: Labour Force, Australia (6203.0).

## 6.22 UNEMPLOYED PERSONS, Age and Whether Looking for Full-time or Part-time Work, Annual Average—1998-99

	No. unemployed			Unemployment rate		
	Males	Females	Persons	Males	Females	Persons
	'000	'000	'000	%	%	%
<b>LOOKING FOR FULL-TIME WORK</b>						
Aged 15-19	44.7	31.4	76.1	23.6	28.5	25.4
Looking for first job	25.0	19.5	44.5	..	..	..
Attending school/tertiary educational institution full-time	5.8	4.6	10.4	43.4	47.9	45.3
Not attending school/tertiary educational institution full-time	38.9	26.9	65.7	22.1	26.7	23.7
Aged 20-24	62.4	41.2	103.6	13.0	12.0	12.6
Looking for first job	11.8	11.7	23.5	..	..	..
Attending a tertiary educational institution full-time	2.8	2.2	5.1	24.9	21.5	23.3
Not attending a tertiary educational institution full-time	59.6	38.9	98.5	12.7	11.7	12.3
Aged 25-34	93.4	45.6	139.0	7.6	6.9	7.4
Aged 35-44	68.6	38.5	107.1	5.5	6.9	5.9
Aged 45-54	55.2	30.9	86.1	5.4	6.1	5.6
Aged 55 and over	33.2	7.2	40.4	6.8	5.1	6.4
<b>Total</b>	<b>357.5</b>	<b>194.9</b>	<b>552.4</b>	<b>7.7</b>	<b>8.4</b>	<b>7.9</b>
<b>LOOKING FOR PART-TIME WORK</b>						
Aged 15-19	32.8	37.9	70.7	16.4	14.0	15.0
Attending school/tertiary educational institution full-time	30.0	34.1	64.1	18.5	15.7	16.9
Not attending school/tertiary educational institution full-time	2.8	3.7	6.6	7.5	7.0	7.2
Aged 20-24	8.5	13.0	21.5	7.5	7.6	7.6
Attending a tertiary educational institution full-time	6.0	6.4	12.4	10.7	9.4	10.0
Not attending a tertiary educational institution full-time	2.5	6.6	9.1	4.4	6.4	5.7
Aged 25-34	6.2	20.4	26.7	6.6	6.3	6.4
Aged 35-44	4.0	20.8	24.8	5.1	4.4	4.5
Aged 45-54	3.3	11.1	14.4	4.4	3.2	3.4
Aged 55 and over	3.9	4.0	7.9	3.3	2.5	2.9
<b>Total</b>	<b>58.6</b>	<b>107.3</b>	<b>165.9</b>	<b>8.7</b>	<b>6.2</b>	<b>6.9</b>

Source: Unpublished data, Labour Force Survey.

In 1998–99, the unemployment rates for 15–19 year olds (25.4%) and 20–24 year olds (12.6%) looking for full-time work were higher than the average for all age groups (7.9%). These rates were also higher than for those in the same age groups seeking part-time work (15.0% and 7.6%, respectively) (table 6.22). For these age groups, the unemployment rates for those attending a school/tertiary educational institution full-time, and looking for full-time or part-time work, were roughly double the unemployment rates of those not attending.

### Job search experience

Two key aspects of a person's search for work are the steps taken to find work, and barriers they encounter in obtaining work. Characteristics such as age, sex and education can often influence the person's job search experience and outcomes.

During the 12 months to July 1998, the Commonwealth Government made significant changes to the manner in which it provided employment services to the community. Prior to the change, the Commonwealth Employment Service (CES) provided jobseekers with access to labour market assistance, and offices of the then

Department of Social Security (DSS) provided jobseekers with income support. Labour market assistance is now provided by Centrelink and the Job Network. Centrelink is a government shopfront that provides the first point of contact for people requiring a range of government assistance, including income support and search assistance. These offices started opening from September 1997. The Job Network consists of private, community and government organisations which attempt to match jobseekers with jobs that are registered with these agencies by employers. This network was launched on 1 May 1998.

During the transition to the new arrangements, jobseekers registered at either a CES or Centrelink office, depending on which was operating in their area, for income support and/or job search assistance.

Table 6.23 shows that, in July 1998, almost three-quarters (70%) of unemployed persons were registered with Centrelink/CES and also contacted prospective employers. A further 26% of unemployed persons contacted prospective employers, but were not registered with Centrelink/CES.

**6.23 UNEMPLOYED PERSONS(a), Active Steps Taken to Find Full-time or Part-time Work—July 1998**

	Looking for full-time work			Looking for part-time work			Total		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
Active steps taken to find work	'000	'000	'000	'000	'000	'000	'000	'000	'000
Registered with Centrelink/CES and									
Contacted prospective employers	315.6	138.9	454.4	10.4	23.3	33.7	325.9	162.2	488.1
Took other active steps	7.3	*3.1	10.4	*1.8	*2.6	*4.3	9.0	5.7	14.7
Took no other active steps	*1.4	*2.0	*3.4	*0.1	*0.4	*0.5	*1.5	*2.4	*3.9
Total	324.2	144.0	468.2	12.3	26.3	38.5	336.5	170.3	506.7
Not registered with Centrelink/CES and									
Contacted prospective employers	51.1	46.5	97.6	26.7	54.5	81.1	77.7	101.0	178.7
Took other active steps	*2.7	*1.8	*4.5	*1.9	*4.5	6.5	*4.6	6.3	11.0
Total	53.8	48.3	102.1	28.6	59.0	87.6	82.4	107.3	189.7
<b>Total</b>	<b>378.0</b>	<b>192.3</b>	<b>570.3</b>	<b>40.9</b>	<b>85.3</b>	<b>126.1</b>	<b>418.8</b>	<b>277.6</b>	<b>696.4</b>

(a) Excludes persons who have been stood down.

Source: *Job Search Experience of Unemployed Persons, Australia* (6222.0).

As table 6.24 shows, in July 1998 the most commonly reported main difficulties in finding work were 'considered too young or too old by employers' (16% of unemployed persons) and 'too many applicants for available jobs' (14%). Other common difficulties were 'no vacancies at all' (11%) and 'lacked necessary skills or education' (11%).

The main difficulties in finding work most commonly reported by the long-term unemployed were 'considered too young or too old by employers' (26%) and 'lacked necessary skills or education' (14%). The majority (90%) of long-term unemployed persons in July 1998 had not received any offers of employment in their current period of unemployment.

In the 12 months to July 1998, an estimated 1,695,200 persons or 69% of all jobseekers were successful in obtaining a job (table 6.25), 10% fewer than for the same period to July 1996.

Of these successful jobseekers, 60% were out of work prior to starting their job and 40% changed employers to start their job. The number of persons starting the first job they had ever held was 190,300 (or 11% of successful jobseekers). This was a 19% decrease from the estimate for the 12 months to July 1996.

An estimated 771,200 people had unsuccessfully looked for a job in the 12 months to July 1998, an increase of 3% from July 1996. Some 74% of these persons (or 570,300) were still in the labour force in July 1998.

Younger jobseekers tended to be more successful than older jobseekers in obtaining work, with 73% of those aged 15–34 years being successful compared to 56% of those aged 45 years and over.

Successful jobseekers changing employer were more likely to obtain their preferred occupation than those who were out of work prior to starting their job (78% compared to 62%).

An estimated 20% (339,500) of successful jobseekers spent less than four weeks looking for work. A further 15% had not looked for work at all, having been approached by employers about the job they started.

The occupations in which most successful jobseekers obtained work were Intermediate clerical, sales and service workers (21%) and Labourers and related workers (17%). More part-time than full-time jobs were obtained in these occupations.

**6.24 UNEMPLOYED PERSONS(a), Main Difficulty in Finding Work and Duration of Current Period of Unemployment—July 1998**

	Duration of current period of unemployment (weeks)						Average duration
	1 and under 8	8 and under 26	26 and under 52	1 and under 2 years	2 years and over	Total	
Main difficulty in finding work	'000	'000	'000	'000	'000	'000	weeks
Considered too young or too old by employers	11.0	16.6	21.7	21.8	40.2	111.4	95
No vacancies at all	17.0	18.7	16.3	12.4	13.8	78.3	53
No vacancies in line of work	19.4	16.1	12.7	5.9	5.1	59.2	31
Insufficient work experience	18.0	17.0	18.2	12.3	10.5	75.9	47
Too many applicants for available jobs	24.5	24.5	17.6	15.2	13.8	95.6	48
Lacked necessary skills or education	11.7	16.2	18.4	14.0	19.8	80.0	68
Too far to travel, transport problems	7.4	11.3	8.9	6.1	9.1	42.9	91
Own ill health or disability	8.3	7.4	5.6	5.8	14.0	41.3	98
Language difficulties	*2.2	*2.8	*2.4	*3.0	*2.9	13.3	62
Unsuitable hours	7.6	5.7	*3.5	*3.7	*1.0	21.5	28
Difficulties with childcare, other family responsibilities	*4.3	*3.3	*0.8	*2.8	*1.0	12.2	39
Other difficulties(b)	3.2	6.2	*4.7	*2.2	*3.9	20.2	55
No difficulties reported	32.2	6.3	*3.9	*1.0	*1.2	44.6	12
<b>Total</b>	<b>166.9</b>	<b>152.2</b>	<b>134.6</b>	<b>106.2</b>	<b>136.4</b>	<b>696.4</b>	<b>60</b>

(a) Excludes persons who have been stood down. (b) Includes persons who reported difficulties because of ethnic background.

Source: *Job Search Experience of Unemployed Persons, Australia* (6222.0).

### 6.25 SUCCESSFUL JOBSEEKERS, WHETHER JOB STARTED WAS IN PREFERRED OCCUPATION—July 1998

	Age group (years)						
	15–19	20–24	25–34	35–44	45–54	55 and over	Total
OUT OF WORK PRIOR TO STARTING JOB ('000)							
Job was in preferred occupation	144.5	127.9	161.8	109.9	65.1	27.0	636.2
Job was not in preferred occupation	38.3	38.1	47.7	25.4	20.8	4.8	175.1
Preferred occupation not specified	5.0	4.8	5.0	*2.1	*2.1	*0.6	19.5
Did not have a preferred occupation	72.1	36.4	29.9	27.9	17.7	5.7	189.7
Total	260.0	207.1	244.5	165.2	105.7	38.1	1 020.5
CHANGED EMPLOYER TO START JOB ('000)							
Job was in preferred occupation	47.8	112.8	185.3	107.7	63.9	13.9	531.5
Job was not in preferred occupation	5.9	17.9	17.5	11.0	7.5	1.4	61.2
Preferred occupation not specified	*1.0	*1.6	*2.6	*0.6	*0.3	*0.2	6.4
Did not have a preferred occupation	17.2	18.7	17.0	13.1	7.7	*1.9	75.6
Total	71.9	151.0	222.4	132.4	79.4	17.4	674.6
TOTAL ('000)							
Job was in preferred occupation	192.4	240.7	347.1	217.6	129.1	40.9	1 167.7
Job was not in preferred occupation	44.2	56.0	65.2	36.4	28.2	6.3	236.3
Preferred occupation not specified	6.0	6.4	7.7	*2.7	*2.4	*0.8	25.9
Did not have a preferred occupation	89.3	55.0	46.9	41.0	25.4	7.6	265.2
Total	331.9	358.1	466.9	297.6	185.1	55.5	1 695.2

Source: *Successful and Unsuccessful Job Search Experience, Australia (6245.0)*.

## Job vacancies

Job vacancies statistics, taken together with employment statistics, help in assessing the demand for labour.

A job vacancy is a job available for immediate filling on the survey reference day and for which recruitment action has been taken by the employer.

After peaking at 73,100 in May 1989, the estimated number of job vacancies in Australia fell rapidly to a low of 24,300 in May 1992. Vacancies subsequently rose to a new peak of 77,400 in

November 1998. Since then the estimate of job vacancies has fallen to 71,100 in May 1999.

From May 1998 to May 1999 there was an increase of 9,200 job vacancies in New South Wales, but decreases of 6,600 and 4,300 in Queensland and Western Australia respectively (table 6.26).

Table 6.27 shows that the number of job vacancies fell in Retail trade (by 4,900) and Property and business services (by 4,200) in the twelve months to May 1999, with small movements in the other industries.

### 6.26 JOB VACANCIES, By State/Territory

	May 1994	May 1995	May 1996	May 1997	May 1998	May 1999
State/Territory	'000	'000	'000	'000	'000	'000
New South Wales	17.7	23.9	24.5	19.6	20.5	29.7
Victoria	15.3	10.2	11.6	11.5	20.2	17.6
Queensland	6.1	6.1	7.3	12.1	* 15.4	8.8
South Australia	* 2.4	3.3	* 2.4	3.0	* 2.7	3.5
Western Australia	4.4	6.2	5.4	* 8.6	11.0	6.7
Tasmania	0.8	* 1.7	* 0.8	* 1.4	* 0.6	* 1.6
Northern Territory	0.7	1.0	0.9	0.9	1.6	* 1.0
Australian Capital Territory	* 1.9	1.3	0.8	* 1.0	1.4	2.2
<b>Australia</b>	<b>49.4</b>	<b>53.7</b>	<b>53.6</b>	<b>58.1</b>	<b>73.3</b>	<b>71.1</b>

Source: *Job Vacancies and Overtime, Australia (6354.0)*.

## 6.27 JOB VACANCIES, By Industry

	May 1995	May 1996	May 1997	May 1998	May 1999
Industry	'000	'000	'000	'000	'000
Mining	1.2	* 2.8	1.2	0.8	0.8
Manufacturing	5.9	8.2	5.8	6.4	9.4
Electricity, gas and water supply	0.2	0.2	* 0.3	0.2	0.3
Construction	* 3.5	* 1.1	* 4.6	* 6.0	* 3.6
Wholesale trade	4.4	2.2	* 4.9	* 5.9	* 5.1
Retail trade	7.1	* 10.2	* 6.9	11.9	7.0
Accommodation, cafes and restaurants	3.5	2.8	4.6	* 3.5	* 6.9
Transport and storage	* 0.9	* 1.9	0.6	* 1.3	* 2.1
Communication services	0.2	0.2	* 0.2	0.2	0.9
Finance and insurance	4.6	2.9	3.9	2.4	2.4
Property and business services	* 5.7	7.4	10.2	* 17.4	* 13.2
Government administration and defence	3.4	2.5	3.3	3.8	4.7
Education	2.8	2.6	2.6	3.2	2.8
Health and community services	6.0	5.2	6.7	6.5	6.7
Cultural and recreational services	* 1.1	1.1	1.5	1.0	2.5
Personal and other services	* 3.1	* 2.0	* 1.0	* 2.8	* 2.7
<b>All industries</b>	<b>53.7</b>	<b>53.6</b>	<b>58.1</b>	<b>73.3</b>	<b>71.1</b>

Source: *Job Vacancies and Overtime, Australia (6354.0)*.

## Persons not in the labour force

Persons not in the labour force represent that group of the population who, during the reference week of a Labour Force Survey, are neither employed nor unemployed (see diagram 6.1). Interest in this group centres primarily on their potential to participate in the labour force and their reasons for not currently participating.

Some persons not in the labour force are classified as marginally attached to the labour force because they want to work and are either looking for work or available to start work. Discouraged job seekers are among those persons marginally attached to the labour force. They are persons who want to work and are available to start work, but are not actively looking for work as they believe they will not find a job.

Of the 3,638,800 persons aged 15–69 years not in the labour force at September 1998, the majority (66%) were female. The proportion of persons not in the labour force rises with age from the 35–44 years age group for both sexes (graph 6.28).

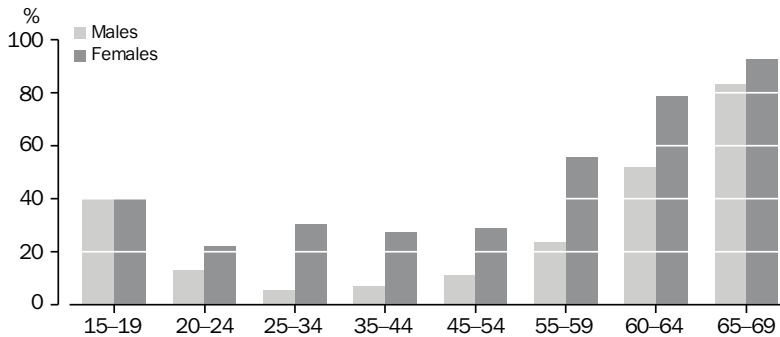
Some 25% of persons not in the labour force were marginally attached to it (table 6.29). An estimated 69% of these potential labour force participants were female.

Of those marginally attached, 94% were not actively looking for work but were available to start work within four weeks, and 6% were actively looking for work. Of those males not actively looking for work, the most commonly reported reasons for not looking were 'attending an educational institution' (35%) and 'own ill health/physical disability' (16%). In contrast, for females the most commonly reported reasons were 'childcare' (31%), 'attending an educational institution' (14%) and 'other family considerations' (10%).

In September 1998, there were 110,900 discouraged job seekers. The majority (67%) of discouraged job seekers were female. The majority of female discouraged job seekers were aged 35–54 years (65%). In contrast, the majority of male discouraged job seekers were aged 55–69 years (49%).

An estimated 58% of male discouraged job seekers and 62% of female discouraged job seekers reported that they intended to enter, or might enter, the labour force in the next 12 months.

**6.28 PROPORTION OF PERSONS NOT IN THE LABOUR FORCE,  
By Age—September 1998**



Source: *Persons Not in the Labour Force, Australia* (6220.0).

**6.29 CIVILIAN POPULATION AGED 15-69, Labour Force Status**

	September 1993	September 1994	September 1995	September 1996	September 1997	September 1998
	'000	'000	'000	'000	'000	'000
<b>Persons in the labour force</b>	8 744.6	8 875.5	9 057.0	9 183.1	9 225.4	9 442.8
<b>Persons not in the labour force</b>						
With marginal attachment to the labour force						
Wanted to work and were actively looking for work						
Were available to start work within four weeks	34.8	38.4	32.8	34.7	35.7	33.2
Were not available to start work within four weeks	23.5	22.9	31.0	23.3	17.6	25.5
Total	58.3	61.3	63.8	58.0	53.3	58.7
Wanted to work but not actively looking for work and available to start work within four weeks						
Discouraged jobseekers	147.4	106.5	111.9	118.9	118.4	110.9
Other	702.0	605.5	687.1	702.6	718.7	753.0
Total	849.5	712.0	799.0	821.5	837.1	863.9
Total with marginal attachment to the labour force	907.8	773.3	862.8	879.5	890.4	922.6
Without marginal attachment to the labour force(a)	2 769.8	2 789.7	2 703.5	2 735.8	2 803.7	2 716.1
Total persons not in the labour force	3 677.5	3 563.0	3 566.3	3 615.4	3 694.2	3 638.8
<b>Civilian population aged 15-69</b>	<b>12 422.1</b>	<b>12 438.5</b>	<b>12 623.3</b>	<b>12 798.5</b>	<b>12 919.6</b>	<b>13 081.6</b>

(a) Includes persons who were permanently unable to work.

Source: *Persons Not in the Labour Force, Australia* (6220.0).

## Labour costs, wage cost index, earnings and hours of work

### Labour costs

Labour costs are those costs incurred by employers in the employment of labour. Labour costs can be split into payments for time actually

worked by employees and additional labour costs incurred by employers.

Table 6.30 details selective labour costs per employee by industry for 1993-94 and 1996-97. The Mining industry continued to have the highest costs per employee (\$79,870) while Retail trade had the lowest (\$19,758).



## 6.30 LABOUR COSTS PER EMPLOYEE, By Industry

Industry	Total labour costs	Earnings	Other labour costs	Super-annuation	Payroll tax	Workers' compensation	Fringe benefits tax
	\$	\$	\$	\$	\$	\$	\$
Mining							
1993-94	66 252	56 988	9 264	3 561	3 090	1 656	956
1996-97	79 870	68 080	11 790	4 407	3 768	1 987	1 628
Manufacturing							
1993-94	36 094	31 658	4 436	1 597	1 582	1 052	204
1996-97	40 200	34 479	5 722	2 245	1 756	1 242	479
Electricity, gas and water supply							
1993-94	51 255	43 071	8 184	4 369	2 383	1 180	252
1996-97	60 056	50 926	9 130	4 234	2 814	1 493	588
Construction							
1993-94	34 414	30 184	4 230	1 925	1 057	1 059	189
1996-97	37 194	32 585	4 609	2 287	786	1 302	234
Wholesale trade							
1993-94	36 756	32 501	4 255	1 885	1 328	546	495
1996-97	41 764	36 099	5 665	2 625	1 422	766	852
Retail trade							
1993-94	19 193	17 360	1 833	747	691	314	81
1996-97	19 758	17 610	2 148	1 046	592	376	134
Accommodation, cafes and restaurants							
1993-94	18 440	16 774	1 666	801	517	290	58
1996-97	20 089	18 063	2 026	981	519	450	76
Transport and storage							
1993-94	43 504	36 606	6 898	3 607	1 587	1 198	236
1996-97	45 582	39 204	6 377	2 842	1 887	1 184	464
Communication services							
1993-94	49 105	41 913	7 192	3 927	2 443	615	207
1996-97	53 065	44 965	8 099	4 142	2 841	637	479
Finance and insurance							
1993-94	43 387	37 301	6 086	2 469	2 096	214	1 307
1996-97	51 854	44 613	7 241	2 321	2 539	254	2 127
Property and business services							
1993-94	31 872	28 564	3 308	1 877	866	272	* 293
1996-97	35 594	31 180	4 414	2 514	982	427	491
Government administration and defence							
1993-94	36 401	32 275	4 127	2 564	678	658	227
1996-97	43 126	37 421	5 706	3 943	625	822	316
Education							
1993-94	34 637	30 873	3 765	1 911	1 433	341	79
1996-97	35 139	30 493	4 645	2 748	1 344	447	106
Health and community services							
1993-94	28 682	26 360	2 323	1 561	198	541	22
1996-97	31 247	28 086	3 161	2 212	279	643	28
Cultural and recreational services							
1993-94	19 206	17 321	* 1 885	* 991	* 521	* 256	* 117
1996-97	30 469	26 925	3 544	1 809	1 059	401	275
Personal and other services							
1993-94	31 675	28 141	3 534	1 741	1 057	591	145
1996-97	35 007	30 340	4 667	2 482	1 164	813	208
All industries							
1993-94	32 259	28 530	3 729	1 800	1 104	588	237
1996-97	35 435	30 870	4 565	2 291	1 160	719	395

Source: Unpublished data, Labour Costs Survey.

## Wage Cost Index

The Wage Cost Index (WCI) is a pure price index designed to measure changes over time in wage and salary rates of pay. Index numbers for the WCI are compiled from hourly wage and salary rates for a representative sample of employee jobs within a sample of employing organisations. By following a sample of jobs over time, and by maintaining a fixed weighting pattern, the wage cost indexes are unaffected by, for example, shifts in the distribution of employees across occupations and industries, and between full-time and part-time jobs. Thus, unlike other ABS earnings measures such as the quarterly Average Weekly Earnings series, the WCI does not measure changes in average (per employee) wage payments.

As shown in table 6.31, the increases in the indexes for total hourly rates of pay excluding bonuses varied between the private and public sectors and across States and Territories. At the all sectors level, the annual percentage increase from the March quarter 1998 to the March quarter 1999 for Australia was 3.0%. The increase for the public sector was higher at 4.1% than for the private sector at 2.8%.

At the all sectors level the annual percentage increases from the March quarter 1998 to the March quarter 1999 ranged from 2.6% for Western Australia to 3.4% for New South Wales.

The increases for the private sector ranged from 2.4% for the Australian Capital Territory to 3.1% for South Australia, and for the public sector they ranged from 2.7% for South Australia to 6.0% for New South Wales.

As illustrated in table 6.32, at the all sectors level the annual percentage increases from March quarter 1998 to March quarter 1999 ranged from 2.0% for Accommodation, cafes and restaurants to 4.1% for Government administration and defence, and Health and community services. The increases for the private sector ranged from 1.9% for Personal and other services to 3.7% for Health and community services, and for the public sector they ranged from 4.0% for Education to 4.7% for Health and community services.

As table 6.33 shows, at the all sectors level the annual percentage increases from the March quarter 1998 to the March quarter 1999 ranged from 2.7% for Intermediate clerical, sales and service workers, Elementary clerical, sales and service workers, and Labourers and related workers to 3.6% for Professionals. The increases for the private sector ranged from 2.3% for Intermediate clerical, sales and service workers to 3.2% for Professionals, and for the public sector they ranged from 2.9% for Tradespersons and related workers to 4.5% for Advanced clerical and service workers.

**6.31 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By Sector and State/Territory**

Occupation	Index numbers(a)					Percentage change from corresponding quarter of previous year
	March quarter 1998	June quarter 1998	September quarter 1998	December quarter 1998	March quarter 1999	March quarter 1999
<b>PRIVATE</b>						
New South Wales	101.7	102.0	103.2	103.8	104.5	2.8
Victoria	101.7	102.1	103.2	103.8	104.4	2.7
Queensland	101.6	102.2	103.1	103.8	104.4	2.8
South Australia	101.5	101.9	103.3	104.0	104.6	3.1
Western Australia	102.2	102.7	103.6	104.2	104.9	2.6
Tasmania	101.2	101.6	102.5	103.1	104.0	2.8
Northern Territory	101.2	101.7	102.8	103.2	103.9	2.7
Australian Capital Territory	101.3	101.6	102.5	102.8	103.7	2.4
<i>Australia</i>	<i>101.7</i>	<i>102.1</i>	<i>103.2</i>	<i>103.8</i>	<i>104.5</i>	<i>2.8</i>
<b>PUBLIC</b>						
New South Wales	102.1	102.4	104.8	105.4	108.2	6.0
Victoria	101.5	101.9	103.2	103.8	104.9	3.3
Queensland	102.1	102.4	103.3	104.3	105.0	2.8
South Australia	101.8	102.0	102.9	103.5	104.5	2.7
Western Australia	101.1	101.9	103.0	103.3	104.0	2.9
Tasmania	100.7	101.1	102.2	102.7	103.8	3.1
Northern Territory	102.9	103.0	103.5	105.5	106.1	3.1
Australian Capital Territory	100.9	101.3	103.0	103.5	104.4	3.5
<i>Australia</i>	<i>101.7</i>	<i>102.2</i>	<i>103.7</i>	<i>104.3</i>	<i>105.9</i>	<i>4.1</i>
<b>PRIVATE AND PUBLIC</b>						
New South Wales	101.8	102.1	103.6	104.1	105.3	3.4
Victoria	101.6	102.1	103.2	103.8	104.5	2.9
Queensland	101.7	102.2	103.2	103.9	104.6	2.9
South Australia	101.5	101.9	103.2	103.8	104.6	3.1
Western Australia	102.0	102.6	103.4	104.0	104.7	2.6
Tasmania	101.1	101.4	102.4	102.9	103.9	2.8
Northern Territory	101.8	102.2	103.0	104.0	104.7	2.8
Australian Capital Territory	101.1	101.4	102.8	103.3	104.1	3.0
<b>Australia</b>	<b>101.7</b>	<b>102.1</b>	<b>103.3</b>	<b>103.9</b>	<b>104.8</b>	<b>3.0</b>

(a) Base of each index: September Quarter 1997 = 100.0.

Source: Wage Cost Index, Australia (6345.0).

**6.32 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By Sector and Industry(a)**

Occupation	Index numbers(b)					Percentage change from corresponding quarter of previous year
	March quarter 1998	June quarter 1998	September quarter 1998	December quarter 1998	March quarter 1999	March quarter 1999
<b>PRIVATE</b>						
Mining	101.4	101.8	102.6	103.0	104.0	2.6
Manufacturing	102.2	102.8	103.8	104.5	105.1	2.8
Electricity, gas and water supply	101.8	102.4	103.2	103.4	105.4	3.5
Construction	102.4	103.0	104.1	104.7	105.2	2.7
Wholesale trade	101.2	101.6	102.7	103.3	103.7	2.5
Retail trade	101.3	101.8	102.5	103.0	103.7	2.4
Accommodation, cafes and restaurants	101.7	102.0	102.6	103.0	103.7	2.0
Transport and storage	101.5	101.8	102.9	103.3	104.1	2.6
Communication services	100.5	100.7	102.5	102.8	102.9	2.4
Finance and insurance	102.2	102.9	103.9	104.6	105.2	2.9
Property and business services	101.9	102.0	103.5	104.0	104.7	2.7
Education	101.2	101.5	102.9	103.1	104.3	3.1
Health and community services	101.0	101.3	102.7	104.1	104.7	3.7
Cultural and recreational services	101.2	101.7	102.7	103.0	103.5	2.3
Personal and other services	101.0	101.4	101.8	102.5	102.9	1.9
<i>All industries</i>	<i>101.7</i>	<i>102.1</i>	<i>103.2</i>	<i>103.8</i>	<i>104.5</i>	<i>2.8</i>
<b>PUBLIC</b>						
Government administration and defence	101.3	101.7	103.5	104.2	105.5	4.1
Education	102.0	102.4	103.9	104.7	106.1	4.0
Health and community services	102.6	103.1	104.8	105.8	107.4	4.7
Cultural and recreational services	101.2	102.3	104.1	104.4	105.7	4.4
Personal and other services	101.8	101.8	104.2	104.5	106.5	4.6
<i>All industries(c)</i>	<i>101.7</i>	<i>102.2</i>	<i>103.7</i>	<i>104.3</i>	<i>105.9</i>	<i>4.1</i>
<b>PRIVATE AND PUBLIC</b>						
Mining	101.4	101.8	102.6	103.0	104.0	2.6
Manufacturing	102.2	102.8	103.8	104.6	105.1	2.8
Electricity, gas and water supply	102.2	102.6	103.2	104.0	105.2	2.9
Construction	102.3	103.1	104.1	104.8	105.3	2.9
Wholesale trade	101.2	101.6	102.7	103.3	103.7	2.5
Retail trade	101.3	101.8	102.5	102.9	103.7	2.4
Accommodation, cafes and restaurants	101.7	101.9	102.6	103.0	103.7	2.0
Transport and storage	101.5	101.8	102.9	103.2	104.1	2.6
Communication services	100.8	101.3	101.5	101.7	104.2	3.4
Finance and insurance	102.2	102.9	103.9	104.7	105.3	3.0
Property and business services	101.8	102.0	103.6	104.0	104.9	3.0
Government administration and defence	101.3	101.7	103.5	104.2	105.5	4.1
Education	101.7	102.1	103.6	104.2	105.5	3.7
Health and community services	101.7	102.1	103.6	104.9	105.9	4.1
Cultural and recreational services	101.2	101.9	103.1	103.5	104.2	3.0
Personal and other services	101.4	101.6	102.9	103.3	104.5	3.1
<b>All industries</b>	<b>101.7</b>	<b>102.1</b>	<b>103.3</b>	<b>103.9</b>	<b>104.8</b>	<b>3.0</b>

(a) Industry classified according to the Australian and New Zealand Standard Industrial Classification (1993). (b) Base of each index: September Quarter 1997 = 100.0. (c) Includes Mining, Manufacturing, Electricity, gas and water supply, Construction, Wholesale trade, Retail trade, Accommodation, cafes and restaurants, Transport and storage, Communication services, Finance and insurance, Property and business services.

Source: Wage Cost Index, Australia (6345.0).

**6.33 TOTAL HOURLY RATES OF PAY EXCLUDING BONUSES, By Sector and Occupation(a)**

Occupation	Index numbers(b)					Percentage change from corresponding quarter of previous year
	March quarter 1998	June quarter 1998	September quarter 1998	December quarter 1998	March quarter 1999	March quarter 1999
<b>PRIVATE</b>						
Managers and administrators	102.3	102.8	103.7	104.6	105.1	2.7
Professionals	101.9	102.2	103.6	104.3	105.2	3.2
Associate professionals	101.8	102.3	103.1	103.7	104.3	2.5
Tradespersons and related workers	101.9	102.5	103.6	104.1	104.8	2.8
Advanced clerical and service workers	101.4	101.7	103.2	103.9	104.4	3.0
Intermediate clerical, sales and service workers	101.4	101.7	102.6	103.1	103.7	2.3
Intermediate production and transport workers	101.5	102.0	103.2	103.8	104.4	2.9
Elementary clerical, sales and service workers	101.0	101.6	102.4	102.9	103.6	2.6
Labourers and related workers	101.7	102.1	103.0	103.7	104.3	2.6
<i>All occupations</i>	<i>101.7</i>	<i>102.1</i>	<i>103.2</i>	<i>103.8</i>	<i>104.5</i>	<i>2.8</i>
<b>PUBLIC</b>						
Managers and administrators	101.6	101.9	103.4	104.1	105.5	3.8
Professionals	101.7	102.1	103.6	104.5	106.1	4.3
Associate professionals	101.8	102.1	103.8	104.3	106.2	4.3
Tradespersons and related workers	102.0	102.4	103.1	103.8	105.0	2.9
Advanced clerical and service workers	102.8	103.1	105.4	106.1	107.4	4.5
Intermediate clerical, sales and service workers	101.7	102.1	103.7	104.3	105.9	4.1
Intermediate production and transport workers	101.8	102.4	103.4	104.0	105.4	3.5
Elementary clerical, sales and service workers	101.9	103.3	104.3	104.6	105.3	3.3
Labourers and related workers	103.1	103.6	105.4	105.8	107.0	3.8
<i>All occupations</i>	<i>101.7</i>	<i>102.2</i>	<i>103.7</i>	<i>104.3</i>	<i>105.9</i>	<i>4.1</i>
<b>PRIVATE AND PUBLIC</b>						
Managers and administrators	102.1	102.6	103.6	104.5	105.2	3.0
Professionals	101.8	102.2	103.6	104.3	105.5	3.6
Associate professionals	101.8	102.2	103.3	103.9	104.9	3.0
Tradespersons and related workers	101.9	102.5	103.6	104.1	104.8	2.8
Advanced clerical and service workers	101.6	101.9	103.5	104.2	104.8	3.1
Intermediate clerical, sales and service workers	101.5	101.8	102.9	103.4	104.2	2.7
Intermediate production and transport workers	101.6	102.0	103.2	103.8	104.5	2.9
Elementary clerical, sales and service workers	101.2	101.9	102.8	103.3	103.9	2.7
Labourers and related workers	101.9	102.3	103.3	104.0	104.7	2.7
<b>All occupations</b>	<b>101.7</b>	<b>102.1</b>	<b>103.3</b>	<b>103.9</b>	<b>104.8</b>	<b>3.0</b>

(a) Occupation classified according to the Australian Standard Classification of Occupations (second edition). (b) Base of each index: September Quarter 1997 = 100.0.

Source: *Wage Cost Index, Australia* (6345.0).

**6.34 AVERAGE WEEKLY EARNINGS**

	May 1994	May 1995	May 1996	May 1997	May 1998	May 1999
	\$	\$	\$	\$	\$	\$
<b>MALES</b>						
Full-time adult employees						
Average weekly ordinary time earnings	654.00	687.80	715.80	740.70	773.20	798.40
Average weekly total earnings	705.90	743.00	774.20	795.80	829.90	853.40
All male employees						
Average weekly total earnings	625.10	652.70	671.50	687.10	714.50	733.00
<b>FEMALES</b>						
Full-time adult employees						
Average weekly ordinary time earnings	552.10	575.50	594.10	620.30	646.90	669.60
Average weekly total earnings	566.70	589.80	607.90	634.80	660.60	683.50
All female employees						
Average weekly total earnings	422.80	429.90	441.10	457.40	468.30	483.00
<b>PERSONS</b>						
Full-time adult employees						
Average weekly ordinary time earnings	617.50	647.30	672.60	696.60	726.90	750.80
Average weekly total earnings	656.10	687.80	715.20	736.80	767.80	790.60
All employees						
Average weekly total earnings	531.80	548.10	564.40	577.80	596.20	611.10

Source: *Average Weekly Earnings, States and Australia* (6302.0).

### Average weekly earnings

Weekly total earnings include award, over-award, workplace and enterprise bargaining payments, and overtime pay. Weekly ordinary time earnings relate only to that part of total earnings attributable to award, standard or agreed hours of work.

Table 6.34 shows average weekly earnings for male and female employees over the five years from May 1994 to May 1999. For males, average weekly ordinary-time earnings of full-time adults (AWOTE) increased by 22.1% from \$654.00 to \$798.40 over this period. For females, AWOTE increased by 21.3% from \$552.10 to \$669.60.

### Composition and distribution of earnings

Statistics on the composition and distribution of average weekly earnings, for various categories of employees by occupation groups, industries and sectors, provide an additional perspective on earnings.

Table 6.35 shows the distribution of average weekly total earnings across different occupations and categories of employees in May 1998. Average weekly total earnings vary considerably across occupations and between males and females, with earnings generally reflecting associated skill levels. In May 1998, full-time adult male Managers and administrators received estimated average weekly total earnings of \$1,276.80, while their female counterparts averaged \$1,082.40. At the lower levels

of total weekly earnings, full-time adult male Elementary clerical, sales and service workers earned on average \$623.30, compared to \$522.80 for females in the same occupation.

Part-time employees in Elementary clerical, sales and service worker occupations received estimated average total earnings of \$205.40 per week in May 1998, well below the average earnings for part-time employees overall (\$279.20).

For table 6.36, the distribution of weekly total earnings of the major occupation groups was arranged into percentiles (100 population groups having equal frequencies). The table shows the weekly total earnings of a selection of progressively higher percentiles, for the major occupation groups. The largest difference in weekly total earnings between the 10th and 90th percentiles is in male Managers and administrators. The smallest difference is in female Elementary clerical, sales and service workers. The table shows that the difference between male and female weekly total earnings is greater for the higher percentiles than for the lower percentiles.

Table 6.37 presents the composition of average weekly earnings, between ordinary and overtime earnings, for full-time adult employees by industry. Significant amounts of overtime earnings were recorded for full-time adult employees in Mining (\$129.30), Transport and storage (\$89.50), Communication services (\$80.20) and Construction (\$79.80).

**6.35 AVERAGE WEEKLY TOTAL EARNINGS, Occupation(a) by Category of Employee—May 1998**

Occupation	Full-time employees							
	Managerial	Non-managerial			Total		Part-time employees	All employees
	Adult	Adult	Junior	Total	Adult	Total		
	\$	\$	\$	\$	\$	\$	\$	\$
<b>MALES</b>								
Managers and administrators	1 283.60	1 113.30	..	1 113.30	1 276.80	1 276.80	409.60	1 260.60
Professionals	1 086.20	994.10	404.40	992.30	1 010.00	1 008.50	437.80	928.40
Associate professionals	816.10	919.70	337.70	913.70	876.60	873.10	328.50	833.20
Tradespersons and related workers	546.30	773.30	340.30	723.80	756.70	712.20	293.90	688.00
Advanced clerical and service workers	882.00	744.80	361.90	743.10	769.50	768.00	248.10	715.10
Intermediate clerical, sales and service workers	766.60	694.20	302.40	684.30	698.20	688.70	262.00	599.90
Intermediate production and transport workers	550.70	771.20	364.40	761.10	764.30	754.70	255.80	675.30
Elementary clerical, sales and service workers	530.30	625.30	336.10	607.60	623.30	606.10	199.60	395.30
Labourers and related workers	621.90	630.40	313.60	618.40	630.40	618.40	204.50	480.90
<i>All occupations</i>	<i>1 034.80</i>	<i>792.20</i>	<i>337.40</i>	<i>771.80</i>	<i>843.30</i>	<i>825.20</i>	<i>262.00</i>	<i>729.80</i>
<b>FEMALES</b>								
Managers and administrators	1 079.50	1 148.90	..	1 148.90	1 082.40	1 082.40	453.00	1 015.70
Professionals	967.10	850.70	514.20	850.40	859.00	858.80	425.80	680.60
Associate professionals	653.40	700.70	390.90	699.30	683.10	681.90	350.50	587.70
Tradespersons and related workers	530.60	547.90	282.90	494.50	547.00	496.10	265.90	395.20
Advanced clerical and service workers	480.40	641.50	340.70	630.70	627.70	618.30	289.90	510.80
Intermediate clerical, sales and service workers	623.20	581.10	336.30	568.10	582.10	569.40	280.50	429.30
Intermediate production and transport workers	* 366.70	573.50	341.00	566.50	573.20	566.20	227.90	409.20
Elementary clerical, sales and service workers	330.80	526.50	333.40	504.00	522.80	501.20	207.70	289.90
Labourers and related workers	378.50	526.90	367.20	521.80	526.00	520.90	213.90	319.90
<i>All occupations</i>	<i>820.50</i>	<i>659.00</i>	<i>332.20</i>	<i>645.50</i>	<i>679.40</i>	<i>666.80</i>	<i>285.60</i>	<i>484.00</i>
<b>PERSONS</b>								
Managers and administrators	1 240.80	1 121.10	..	1 121.10	1 236.00	1 236.00	436.60	1 205.30
Professionals	1 054.50	923.10	423.90	922.10	939.60	938.80	428.40	789.60
Associate professionals	762.80	838.90	348.50	834.90	808.40	805.90	344.60	731.90
Tradespersons and related workers	545.60	760.20	334.10	709.10	744.80	698.70	281.10	658.60
Advanced clerical and service workers	602.90	657.70	341.10	648.00	652.20	643.50	288.00	537.70
Intermediate clerical, sales and service workers	705.40	621.90	329.20	609.30	624.90	612.60	278.00	475.20
Intermediate production and transport workers	549.50	748.00	361.10	738.20	742.50	733.00	245.40	630.30
Elementary clerical, sales and service workers	436.00	576.00	334.30	554.30	573.20	552.20	205.40	327.30
Labourers and related workers	555.80	603.60	325.90	593.50	603.30	593.30	209.80	416.20
<b>All occupations</b>	<b>978.50</b>	<b>739.40</b>	<b>335.50</b>	<b>721.80</b>	<b>782.20</b>	<b>766.20</b>	<b>279.20</b>	<b>610.20</b>

(a) Occupation classified according to the Australian Standard Classification of Occupations (Second Edition).

Source: *Employee Earnings and Hours, Australia* (6306.0).

**6.36 WEEKLY TOTAL EARNINGS(a), Selected Percentiles by Occupation(b)—May 1998**

Occupation	10th percentile \$	25th percentile \$	50th percentile(c) \$	75th percentile \$	90th percentile \$	Average (mean) earnings \$
<b>MALES</b>						
Managers and administrators	633.30	867.30	1 140.80	1 525.50	2 000.20	1 276.80
Professionals	615.80	785.90	922.20	1 134.30	1 448.20	1 010.00
Associate professionals	499.80	646.10	809.90	1 021.50	1 297.80	876.60
Tradespersons and related workers	451.90	550.10	684.80	895.80	1 137.40	756.70
Advanced clerical and service workers	510.70	603.30	711.00	884.30	1 020.40	769.50
Intermediate clerical, sales and service workers	483.30	558.80	656.70	793.00	962.30	698.20
Intermediate production and transport workers	459.90	536.80	679.00	898.50	1 198.00	764.30
Elementary clerical, sales and service workers	433.90	493.80	599.20	694.40	849.30	623.30
Labourers and related workers	401.80	480.30	568.50	726.00	926.60	630.40
<i>All occupations</i>	<i>468.10</i>	<i>574.90</i>	<i>748.70</i>	<i>992.20</i>	<i>1 315.00</i>	<i>843.30</i>
<b>FEMALES</b>						
Managers and administrators	589.00	740.00	1 007.50	1 255.50	1 724.40	1 082.40
Professionals	605.70	713.40	853.30	940.10	1 098.50	859.00
Associate professionals	423.10	535.30	649.00	802.80	976.00	683.10
Tradespersons and related workers	401.90	463.90	536.10	600.50	724.60	547.00
Advanced clerical and service workers	439.30	523.60	607.60	724.20	840.40	627.70
Intermediate clerical, sales and service workers	437.60	495.10	560.20	652.10	757.90	582.10
Intermediate production and transport workers	400.90	441.30	509.90	647.30	823.20	573.20
Elementary clerical, sales and service workers	401.70	435.30	481.60	584.80	706.40	522.80
Labourers and related workers	383.00	435.60	497.30	587.30	719.10	526.00
<i>All occupations</i>	<i>433.80</i>	<i>506.60</i>	<i>622.10</i>	<i>803.30</i>	<i>964.20</i>	<i>679.40</i>
<b>PERSONS</b>						
Managers and administrators	607.10	837.30	1 106.20	1 464.50	1 963.70	1 236.00
Professionals	610.00	746.00	888.40	1 028.20	1 297.00	939.60
Associate professionals	457.00	586.50	748.40	962.00	1 205.20	808.40
Tradespersons and related workers	449.60	540.10	673.40	884.10	1 124.40	744.80
Advanced clerical and service workers	451.40	534.80	623.20	743.40	880.60	652.20
Intermediate clerical, sales and service workers	450.40	509.00	590.20	700.20	839.80	624.90
Intermediate production and transport workers	446.20	521.70	659.00	877.90	1 169.20	742.50
Elementary clerical, sales and service workers	409.10	459.80	530.60	647.80	780.60	573.20
Labourers and related workers	400.40	463.10	544.20	689.90	870.80	603.30
<b>All occupations</b>	<b>451.80</b>	<b>541.80</b>	<b>693.80</b>	<b>913.80</b>	<b>1 191.40</b>	<b>782.20</b>

(a) For full-time adult employees. (b) Occupation classified according to the Australian Standard Classification of Occupations (Second Edition). (c) The median percentile.

Source: *Employee Earnings and Hours, Australia* (6306.0).



**6.37 AVERAGE WEEKLY EARNINGS(a), Composition—May 1998**

Industry	Ordinary earnings	Overtime earnings	Total earnings
	\$	\$	\$
Mining	1 182.30	129.30	<b>1 311.70</b>
Manufacturing	680.90	72.80	<b>753.80</b>
Electricity, gas and water supply	854.70	64.90	<b>919.70</b>
Construction	744.10	79.80	<b>823.80</b>
Wholesale trade	719.10	23.10	<b>742.20</b>
Retail trade	572.70	14.90	<b>587.60</b>
Accommodation, cafes and restaurants	563.60	* 11.90	<b>575.50</b>
Transport and storage	734.30	89.50	<b>823.80</b>
Communication services	846.10	80.20	<b>926.30</b>
Finance and insurance	899.40	11.30	<b>910.70</b>
Property and business services	803.60	20.70	<b>824.30</b>
Government administration and defence	766.90	23.20	<b>790.00</b>
Education	831.40	3.20	<b>834.60</b>
Health and community services	731.10	19.70	<b>750.90</b>
Cultural and recreational services	769.40	15.00	<b>784.40</b>
Personal and other services	698.70	56.30	<b>755.00</b>
All industries	742.60	39.60	<b>782.20</b>

(a) For full-time adult employees.

Source: *Employee Earnings and Hours, Australia* (6306.0).

**Standard non-wage benefits**

In addition to wages and salaries, the majority of employees also receive leave (sick, holiday and long-service) and superannuation benefits.

In August 1998, 97% of the 5,213,500 full-time employees received one or more of the standard employment benefits of superannuation, sick leave, holiday leave or long-service leave in their main job. In comparison, 75% of the 2,031,300 part-time employees received one or more standard employment benefits.

Table 6.38 shows the proportion of employees receiving each of the standard employment benefits. The proportion receiving a superannuation benefit (i.e. belonging to a superannuation scheme or fund arranged or

provided by their employer) has increased steadily in recent years. The proportion rose from 85% in 1993 to 89% in 1998. For full-time employees, the proportion receiving holiday and sick leave fell slightly between 1993 and 1998, while for part-time employees the proportion receiving these benefits rose slightly.

Public sector employees had a higher incidence of receipt of standard benefits than private sector employees. Of the 1,548,600 public sector employees, 96% received superannuation, 88% holiday leave, 89% sick leave and 85% long-service leave. In comparison, the proportions of the 5,696,200 private sector employees receiving standard benefits were: 87% receiving superannuation, 68% holiday leave, 68% sick leave, and 56% long-service leave (Table 6.39).

**6.38 EMPLOYEES IN MAIN JOB(a), By Type of Standard Benefit Received**

Type of benefit	Working full-time		Working part-time		Total employees	
	August 1993	August 1998	August 1993	August 1998	August 1993	August 1998
	%	%	%	%	%	%
Superannuation	92.5	95.0	61.3	72.7	84.9	88.7
Holiday leave	90.4	87.3	30.4	33.1	75.8	72.1
Sick leave	90.1	87.3	30.6	33.5	75.7	72.2
Long-service leave	76.5	75.1	25.6	28.2	64.2	62.0

Source: *Weekly Earnings of Employees (Distribution), Australia* (6310.0).

**6.39 EMPLOYEES, By Selected Characteristics and Standard Benefits—August 1998**

	No standard benefits received	Type of standard benefit received					Received a benefit
		Super- annuation	Holiday leave	Sick leave	Long- service leave	Total(a)	
	'000	'000	'000	'000	'000	'000	%
Full-time and part-time employees							
Full-time	160.1	4 952.0	4 553.3	4 550.1	3 915.9	5 213.5	96.9
Part-time	503.0	1 477.0	671.8	681.3	573.7	2 031.3	75.2
Permanent or casual employees							
Permanent	..	5 159.9	5 225.1	5 231.5	4 372.6	5 298.7	100.0
Casual	663.0	1 269.1	..	..	117.1	1 946.1	65.9
Sector							
Public	48.6	1 482.4	1 362.8	1 372.8	1 313.1	1 548.6	96.9
Private	614.4	4 946.6	3 862.3	3 858.7	3 176.6	5 696.2	89.2
<b>Total</b>	<b>663.0</b>	<b>6 428.9</b>	<b>5 225.1</b>	<b>5 231.5</b>	<b>4 489.7</b>	<b>7 244.8</b>	<b>90.8</b>

(a) Includes persons receiving more than one standard benefit.

Source: *Employee Earnings, Benefits and Trade Union Membership* (6310.0).

## Superannuation

In August 1998, 89% of employees received superannuation as an employment benefit in their main job (table 6.40). The proportion of males who received superannuation increased from 87% in August 1993 to 90% in August 1998. In comparison, the proportion of females receiving superannuation as an employment benefit increased from 82% in August 1993 to 88% in August 1998.

The majority (95%) of employees aged 20 years and over received superannuation as an employment benefit in August 1998. In contrast, just over half (56%) of employees aged 15–19 years were covered by superannuation. The proportions of employees covered by superannuation benefits in other age groups were: 88% of employees aged 20–24; 92% of 25–34 year olds; 92% of 35–44 year olds; 93% of 45–54 year olds and 91% of 55–59 year olds. Of employees aged 60 and over, 81% had superannuation coverage.

In August 1998, 96% of employees in the public sector received superannuation benefits (97% of males and 95% of females) compared with 87% of private sector employees (88% of males and 85% of females).

Some 95% of full-time employees received superannuation as an employment benefit in August 1998, increasing from 92% in August 1993.

Over the same period, superannuation coverage of part-time employees showed stronger growth, increasing from 61% in August 1993 to 73% in August 1998.

The Electricity, gas and water supply industry recorded the highest proportion of employees who received superannuation benefits in their main job in August 1998 (100%). Finance and insurance (97%), Government administration and defence (97%) and Mining (95%) also recorded higher than average proportions of coverage. In contrast, Retail trade (76%), Accommodation, cafes and restaurants (78%), and Agriculture, forestry and fishing (80%) recorded the lowest proportions of employees in receipt of superannuation benefits (table 6.41).

### 6.40 EMPLOYEES WHO RECEIVED SUPERANNUATION BENEFITS, As at August(a)

	Males	Females	Persons
	%	%	%
1993	87.4	81.8	84.9
1994	89.4	84.6	87.3
1995	89.2	84.4	87.0
1996	88.0	84.3	86.4
1997	89.3	86.8	88.2
1998	89.7	87.6	88.7

(a) Based on a supplement to the monthly Labour Force Survey in August of each year.

Source: *Employee Earnings, Benefits and Trade Union Membership* (6310.0).

**6.41 PROPORTION OF EMPLOYEES WHO RECEIVED SUPERANNUATION BENEFITS—August 1998**

Industry	Full-time %	Part-time %	Total %
<b>MALES</b>			
Agriculture, forestry and fishing	85.0	73.8	80.2
Mining	96.1	73.3	95.3
Manufacturing	96.8	60.6	94.3
Electricity, gas and water supply	100.0	100.0	100.0
Construction	87.5	61.3	86.5
Wholesale trade	95.9	59.6	92.8
Retail trade	92.9	48.5	76.1
Accommodation, cafes and restaurants	92.1	64.5	78.4
Transport and storage	94.5	71.7	92.5
Communication services	94.5	69.0	93.2
Finance and insurance	96.0	73.8	97.1
Property and business services	91.9	63.2	88.0
Government administration and defence	99.0	72.4	96.8
Education	98.4	70.5	92.8
Health and community services	94.5	72.5	92.6
Cultural and recreational services	94.4	57.7	82.6
Personal and other services	96.3	54.6	85.5
<b>All industries</b>	<b>94.4</b>	<b>60.1</b>	<b>89.7</b>
<b>FEMALES</b>			
Agriculture, forestry and fishing	81.4	65.4	73.8
Mining	94.7	100.0	95.2
Manufacturing	96.6	79.1	92.4
Electricity, gas and water supply	100.0	100.0	100.0
Construction	99.3	84.7	93.5
Wholesale trade	95.5	80.7	90.8
Retail trade	93.5	65.8	74.8
Accommodation, cafes and restaurants	93.4	68.1	75.8
Transport and storage	95.5	86.2	93.3
Communication services	98.3	84.2	94.7
Finance and insurance	99.0	96.8	98.3
Property and business services	96.0	74.9	88.3
Government administration and defence	98.6	88.0	95.5
Education	97.1	84.9	92.4
Health and community services	96.8	90.3	93.3
Cultural and recreational services	98.2	67.2	81.1
Personal and other services	93.1	59.3	78.6
<b>All industries</b>	<b>96.2</b>	<b>77.3</b>	<b>87.6</b>
<b>PERSONS</b>			
Agriculture, forestry and fishing	84.2	69.5	80.2
Mining	95.9	79.2	95.4
Manufacturing	96.8	71.4	94.3
Electricity, gas and water supply	100.0	100.0	100.0
Construction	88.5	71.5	86.5
Wholesale trade	95.8	74.6	92.9
Retail trade	93.2	60.5	76.2
Accommodation, cafes and restaurants	92.6	66.9	78.4
Transport and storage	94.7	78.4	92.5
Communication services	95.6	78.1	93.2
Finance and insurance	97.5	95.1	97.1
Property and business services	93.5	71.2	88.0
Government administration and defence	98.9	85.4	96.8
Education	97.6	82.6	92.9
Health and community services	96.1	88.7	92.7
Cultural and recreational services	96.0	64.3	82.7
Personal and other services	95.1	58.4	85.5
<b>All industries</b>	<b>95.0</b>	<b>72.7</b>	<b>88.7</b>

Source: Employee Earnings, Benefits and Trade Union Membership (6310.0).

## Hours of work and work patterns

Statistics on hours and patterns of work are essential for the study of economic activity, productivity, working conditions, living standards and the quality of life of working people. This section examines some aspects of work patterns and hours of work.

The average weekly hours worked in 1998–99 by various categories of employed persons, and in different industries, are shown in tables 6.42 and 6.43. In 1998–99, men worked, on average, 39.2 hours per week, while women worked 28.2 hours per week, with married women working slightly fewer hours. The difference between males and females is less marked when full-time and part-time work are looked at separately. Male full-time workers worked an average of 42.7 hours per week while women

who were employed full-time averaged 37.9 hours per week. For part-time workers, the difference between men and women is minimal, with men working, on average, 15.3 hours and women working 15.6 hours. Although part-time work is on the increase, the hours worked in part-time employment account for only 11.7% of all hours worked. For women, part-time work accounts for 24.1% of aggregate weekly hours worked, but for men it accounts for just 4.9%.

In 1998–99, the highest average weekly hours worked were recorded in the Mining industry. For females the average weekly hours worked ranged from 22.3 in the Construction industry to 40.3 in Mining. The average weekly hours worked for males ranged from 35.6 in the Cultural and recreational services industry to 47.8 in Agriculture, forestry and fishing (table 6.43).

**6.42 EMPLOYED PERSONS, Aggregate and Average Weekly Hours Worked(a), Annual Average(b)—1998–99**

	Unit	Males	Married	Females		Persons
				Not married	Total	
Aggregate weekly hours worked by						
All workers	mill. hours	192.8	62.5	43.8	106.3	<b>299.2</b>
Full-time workers	mill. hours	183.4	45.7	35.0	80.7	<b>264.1</b>
Part-time workers	mill. hours	9.4	16.8	8.8	25.6	<b>35.1</b>
Average weekly hours worked by						
All workers	hours	39.2	27.8	28.8	28.2	<b>34.5</b>
Full-time workers	hours	42.7	37.8	38.1	37.9	<b>41.1</b>
Part-time workers	hours	15.3	16.2	14.7	15.6	<b>15.6</b>
Employees	hours	39.6	29.3	29.5	29.4	<b>35.0</b>
Other than employees	hours	44.6	28.1	30.3	28.5	<b>39.2</b>
All workers who worked one hour or more in the reference week	hours	41.9	30.5	30.8	30.6	<b>37.1</b>
Full-time workers who worked one hour or more in the reference week	hours	45.6	41.3	40.6	41.0	<b>44.1</b>
Part-time workers who worked one hour or more in the reference week	hours	16.4	17.8	15.7	17.0	<b>16.9</b>

(a) The estimates refer to actual hours worked, not hours paid for. (b) Averages calculated on quarterly estimates.

Source: Unpublished data, Labour Force Survey.

**6.43 EMPLOYED PERSONS, Average Weekly Hours Worked(a) by Industry(b), Annual Average(c)—1998–99**

Industry	Males	Females		Persons
		Married	Total	
hours	hours	hours	hours	hours
Agriculture, forestry and fishing	47.8	28.3	29.5	42.1
Mining	45.6	39.4	40.3	45.1
Manufacturing	40.9	32.6	33.3	39.0
Electricity, gas and water supply	40.8	31.6	34.5	39.7
Construction	41.4	20.2	22.3	38.9
Wholesale trade	42.3	30.5	31.9	39.0
Retail trade	37.0	28.7	24.8	30.8
Accommodation, cafes and restaurants	37.9	30.2	27.3	32.1
Transport and storage	42.1	30.7	32.9	39.8
Communication services	39.2	31.3	31.7	36.7
Finance and insurance	41.9	31.0	33.0	37.0
Property and business services	41.4	28.4	30.6	36.8
Government administration and defence	37.3	30.6	31.7	34.8
Education	38.8	31.4	32.1	34.3
Health and community services	37.9	27.3	28.6	30.8
Cultural and recreational services	35.6	27.1	27.2	31.5
Personal and other services	38.3	26.9	28.2	33.4
<b>All industries</b>	<b>40.5</b>	<b>29.1</b>	<b>29.3</b>	<b>35.6</b>

(a) The estimates refer to actual hours worked, not hours paid for. (b) Classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). (c) Averages calculated on quarterly estimates.

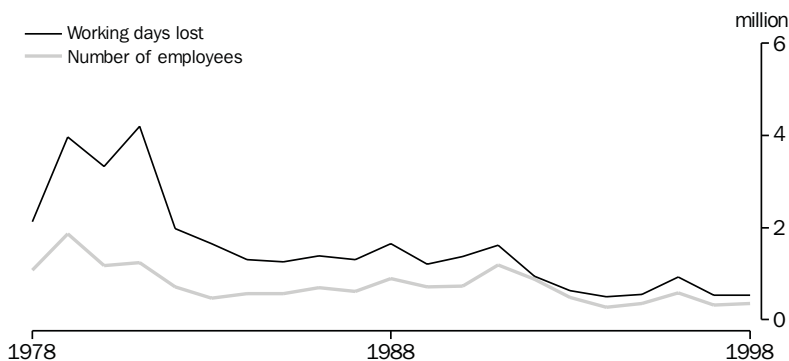
Source: Unpublished data, Labour Force Survey.

## Industrial relations

### Industrial disputes

This section presents statistics on industrial disputes involving the loss of ten working days or more at the establishments where stoppages occurred. Working days lost refer to working days lost by workers directly or indirectly involved in disputes at those establishments.

The number of working days lost per year, and the number of employees involved, have fluctuated from year to year, but have demonstrated a significant downward trend over the last two decades (graph 6.44). In 1981 there were 4.2 million working days lost, involving 1.2 million employees in 2,915 disputes. By 1998, the level of disputation had decreased to 526,300 working days lost, 348,400 employees and only 519 disputes (table 6.45).

**6.44 INDUSTRIAL DISPUTES**

Source: Industrial Disputes, Australia (6322.0).

**6.45 Number of Disputes and Employees Involved**

Year	Disputes		Employees involved		Working days lost
	Commenced in year	Total	Newly involved(a)	Total	
	no.	no.	'000	'000	'000
1993	607	610	489.2	489.6	635.8
1994	556	560	263.4	265.1	501.6
1995	635	643	335.4	344.3	547.6
1996	539	543	575.9	577.7	928.5
1997	444	447	315.0	315.4	534.2
1998	516	519	347.8	348.4	526.3

(a) Comprises workers involved in disputes which commenced during the year and additional workers involved in disputes which continued from the previous year.

Source: *Industrial Disputes, Australia* (6322.0).

Although the total number of working days lost in 1998 was only marginally less than in 1997, there were significant differences between industries (table 6.46). The largest reductions in the number of working days lost were reported by the Metal products; Machinery and equipment manufacturing industry (down by 49,400 to 27,500), and the Coal mining industry (down by 35,300 to 60,400). These reductions in working days lost were more than offset by a large increase in the Construction industry (up by 103,100 to 210,900).

For the past three years Construction has been the industry that recorded the highest number of working days lost. In 1998 the Construction industry accounted for 40% of all working days lost, followed by Education; Health and community services (14%) and Other manufacturing (13%).

There were 72 working days lost per thousand employees in 1988, compared to 131 in 1996 and 75 in 1997 (table 6.47). The Coal mining industry recorded the highest number of working days lost per thousand employees (2,732). This was, however, the lowest figure recorded for this industry since the statistical measure was first compiled in 1967. From 1997 to 1998, Coal mining recorded the largest decrease in working days lost per thousand employees of any published industry (4,206 to 2,732), followed by the Metal products; Machinery and equipment manufacturing industry (189 to 71). The highest increase was reported in the Construction industry (290 to 524).

Among the States and Territories, Victoria recorded the highest number of working days lost in 1998 (200,000), followed by New South Wales (188,500). These two States accounted for 74% of the total number of working days lost from industrial disputation.

**6.46 WORKING DAYS LOST, By Industry(a)**

Industry(a)	1993	1994	1995	1996	1997	1998
	'000	'000	'000	'000	'000	'000
Mining						
Coal	78.6	151.0	111.1	160.8	95.7	60.4
Other	14.4	18.3	78.0	4.4	1.1	1.4
Manufacturing						
Metal products; Machinery and equipment	160.4	45.4	54.8	58.6	76.9	27.5
Other	77.7	78.3	105.1	44.8	68.7	67.7
Construction	13.1	20.2	42.7	334.8	107.8	210.9
Transport and storage; Communication services	15.6	59.4	38.6	20.4	47.7	52.8
Education; Health and community services	147.5	73.8	70.9	239.8	94.0	75.8
Other industries(b)	128.7	55.2	46.3	64.9	42.1	29.8
<b>All industries</b>	<b>635.8</b>	<b>501.6</b>	<b>547.6</b>	<b>928.5</b>	<b>534.2</b>	<b>526.3</b>

(a) Prior to January 1994, industry information was classified according to Australian Standard Industrial Classification (ASIC). From that time, industry data have been classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC). (b) Include: Agriculture, forestry and fishing; Electricity, gas and water supply; Wholesale trade; Retail trade; Accommodation, cafes and restaurants; Finance and insurance; Property and business services; Government administration and defence; Cultural and recreational services; Personal and other services.

Source: *Industrial Disputes, Australia* (6322.0).

Queensland recorded the largest drop in the number of working days lost, from 92,000 in 1997 to 51,600 in 1998. Victoria also recorded a large decrease of 12,100 working days lost over this period. New South Wales recorded the largest increase, from 153,700 to 188,500.

For the second consecutive year Victoria reported the greatest number of working days lost per thousand employees (graph 6.48). In 1998 Victoria had 108 working days lost per thousand employees, followed by Western Australia (83) and New South Wales (78). The Australian average was 72.

Managerial policy (including enterprise bargaining and award restructuring) was the main cause of disputes which ended during 1998, accounting for 291 disputes and 378,500 working days lost. Disputes with a duration of two days or less increased from 50% of total working days lost in 1997 to 69% in 1998.

Approximately 60% of all disputes (306 disputes, accounting for 52% of working days lost) were settled by resumption without negotiation in 1998. This was a slight decrease from 68% of disputes (accounting for 56% of working days lost) settled by this method in 1997. The number of disputes settled by negotiation increased from 74 disputes in 1997 to 120 disputes in 1998.

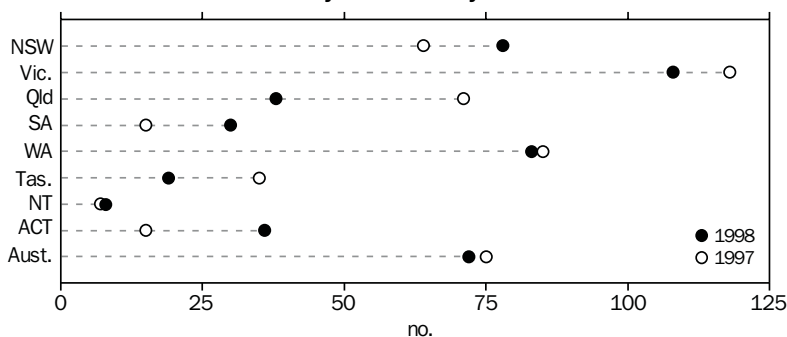
**6.47 WORKING DAYS LOST, Per Thousand Employees(a)(b)**

Industry(b)	1993	1994	1995	1996	1997	1998
Mining						
Coal	2 915	5 964	4 660	7 171	4 206	2 732
Other	254	323	1 359	73	19	23
Manufacturing						
Metal products; Machinery and equipment	426	117	142	146	189	71
Other	121	123	160	70	107	106
Construction	41	59	115	892	290	524
Transport and storage; Communication services	37	137	84	43	101	114
Education; Health and community services	106	63	57	187	73	57
Other industries(c)	41	16	12	17	11	7
<b>All industries</b>	<b>100</b>	<b>76</b>	<b>79</b>	<b>131</b>	<b>75</b>	<b>72</b>

(a) The basis for the calculation of working days lost per thousand employees was changed in January 1995 to use estimates of employees taken from the Labour Force Survey only. Estimates have been recalculated on this basis for each 12 monthly period back to December 1990. (b) Prior to January 1994, industry information was classified according to ASIC. From that time, industry data have been classified according to ANZSIC. (c) Include: Agriculture, forestry and fishing; Electricity, gas and water supply; Wholesale trade; Retail trade; Accommodation, cafes and restaurants; Finance and insurance; Government administration and defence; Cultural and recreational services; Personal and other services.

Source: *Industrial Disputes, Australia* (6322.0).

**6.48 WORKING DAYS LOST PER THOUSAND EMPLOYEES, By State/Territory**



Source: *Industrial Disputes, Australia* (6322.0).

## Trade union membership

In August 1998, of 7,244,800 employees aged 15 and over, 28% were trade union members in connection with their main job (table 6.49).

Of permanent employees, 34% were trade union members. In comparison, 12% of casual employees were trade union members.

Electricity, gas and water supply, and Communication services were the most

unionised industries, with 55% and 54% of employees respectively being trade union members. Agriculture, forestry and fishing was the least unionised (8% of employees).

As shown in graph 6.50, the proportion of employees who were trade union members in connection with their main job has been steadily declining. Between August 1986 and August 1998, the level of trade union membership reported by employees declined by around 40% (18 percentage points).

**6.49 PROPORTION OF EMPLOYEES WHO WERE TRADE UNION MEMBERS—August 1998**

Industry	Males			Females			Persons		
	Permanent employees	Casual employees	Total	Permanent employees	Casual employees	Total	Permanent employees	Casual employees	Total
Industry	%	%	%	%	%	%	%	%	%
Agriculture, forestry and fishing	9.9	*7.4	8.6	*7.8	*5.5	*6.3	9.4	6.8	7.9
Mining	38.5	18.6	36.4	*11.3	11.1	*9.6	35.6	*15.8	33.4
Manufacturing	41.2	14.2	37.5	29.7	10.9	25.2	38.6	13.0	34.5
Electricity, gas and water supply	63.2	*43.7	62.8	*23.3	*0.0	*19.3	57.1	*16.3	55.2
Construction	34.8	15.4	28.1	*6.1	*0.7	*4.3	31.1	13.8	25.2
Wholesale trade	15.6	*6.8	14.5	9.2	*6.0	8.3	13.9	6.4	12.6
Retail trade	18.1	18.4	18.2	33.5	15.9	23.9	25.0	16.9	21.3
Accommodation, cafes and restaurants	17.0	9.9	13.7	19.4	9.0	12.3	17.9	9.3	12.9
Transport and storage	54.7	27.2	49.4	13.5	*5.7	29.4	49.9	21.5	44.3
Communication services	65.2	*10.5	58.4	50.3	*0.0	45.0	60.0	*7.3	53.8
Finance and insurance	31.1	*0.0	28.1	33.0	*6.5	30.9	32.2	*3.6	29.8
Property and business services	14.3	7.1	12.2	11.8	5.9	9.9	13.2	6.5	11.1
Government administration and defence	54.4	*7.0	52.3	40.6	*12.5	36.5	48.7	*11	45.4
Education	55.5	*15.1	50.4	56.0	9.6	47.1	55.8	10.9	48.2
Health and community services	41.2	*5.8	34.3	38.5	11.3	32.3	39.1	10.3	32.7
Cultural and recreational services	30.8	*10.5	24.0	26.3	12.3	19.3	28.7	11.6	21.5
Personal and other services	42.7	*2.3	36.9	22.2	*2.4	15.5	34.2	*2.4	26.7
<b>All industries</b>	<b>35.0</b>	<b>12.9</b>	<b>30.0</b>	<b>33.0</b>	<b>10.5</b>	<b>25.8</b>	<b>34.2</b>	<b>11.6</b>	<b>28.1</b>

Source: *Employee Earnings, Benefits and Trade Union Membership* (6310.0).





Source: *Employee Earnings, Benefits and Trade Union Membership (6310.0)*.

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## Introduction

The economic wellbeing or standard of living of individuals and families is largely dependent on the economic and social resources available to provide for the consumption of goods and services and for participation in the life of society. Such resources may be in the form of cash income received from wages and salaries or investments, or as income support from government. Other factors can also contribute to economic resources, including personal resources such as savings, services such as aged care, respite care and child care from government and welfare organisations, and assistance from family and friends.

Government programs aim to help the economically disadvantaged to achieve social and economic outcomes and to participate in society. Such programs include those of the Department of Family and Community Services (FaCS), which provides income security for the retired, people with disabilities, carers, unemployed people and families with children. Other departments provide income support for other special groups, such as war veterans, war widows and their families, and students. In addition to cash income, government programs also help those with low incomes to meet payments for housing through rent assistance, and for a range of goods and services through pensioner concession and health cards, and other services aimed at helping people in personal and social hardship. Other types of programs aim to encourage the participation of people with disabilities, such as those provided by the Disability Services Program in the FaCS, which assist with employment and advocacy.

This chapter provides information on the levels and sources of income of Australia's population and on the levels and patterns of expenditure on consumer goods and services. Further information is provided on the main income support programs of the Commonwealth Government, describing the eligibility requirements, numbers of beneficiaries and government expenditure on these programs. It covers these in four sections: *Income support programs of the Department of Family and Community Services*; *Community support programs of the Department of Family and*

*Community Services*; *Aged care programs of the Department of Health and Aged Care*; and *Services provided by the Department of Veterans' Affairs*.

The chapter includes short articles on people's living arrangements by disability status and age, and on the support (both formal and informal) for older Australians. Both articles are based on the ABS's 1998 Survey of Disability, Ageing and Carers.

The chapter concludes with an article on income support payments in Australia.

## Household income and expenditure

### Household income

Regular income is the means by which most individuals and families finance current consumption and make provision for the future through saving and investment. The level of cash income can be used as an indicator of the standard of living for most of the population. Information about the levels and sources of income is used to monitor shares of income going to labour, capital and transfers. From a social welfare perspective, analysis of cash income distribution indicates which groups in the population are most disadvantaged, and provides information on the number and characteristics of those needing access to government services.

The ABS conducted six income distribution surveys between 1968 and 1990. In July 1994, the ABS started collecting income data on a continuous basis in the Survey of Income and Housing Costs. These surveys have provided information on the current and annual income of individuals and family units as well as on their characteristics such as age, education, labour force participation, source of income, and the size and composition of family units.

In addition, the ABS has conducted five household expenditure surveys. The main purpose of these surveys is to produce estimates of household expenditure on different commodities and services. Information on current income is collected to explain variations in expenditure levels and to identify groups of special interest (e.g. government income support recipients and low income households).

The most recent information on current income distribution is available from the 1997–98 Survey of Income and Housing Costs. Income refers to gross receipts of recurring and usually regular cash flows at the time of interview. It comprises cash receipts from wages and salaries, profit or loss from own business, property income in the form of interest, rent and dividends, private transfers such as superannuation and child support, and cash transfers from government in the form of benefits and allowances.

While income is usually received by individuals, analyses of the distribution of income are traditionally based on incomes of families or groups of individuals, which reflects the sharing of income that takes place within families. The following analysis is based on the income of a

restricted family grouping called an 'income unit', which assumes that income is shared between partners in couple families and between parents and dependent children. Other family members such as non-dependent children are treated as separate income units. Analyses of income distribution using different units, such as families and households, provide different results.

### Income distribution

As table 7.1 shows, in 1997–98 the average gross weekly income for all income units was \$658. The median gross weekly income (i.e. the midpoint when all units are ranked in order of income) was considerably lower at \$499. This difference reflects the typically asymmetric distribution of income where a large number of units have nil or very low incomes and a smaller number have very high incomes.

**7.1 ALL INCOME UNITS, Selected Characteristics by Gross Weekly Income Quintile Groups—1997–98**

	Unit	Lowest 20%	Second quintile	Third quintile	Fourth quintile	Highest 20%	All income units
Upper boundary of quintile group	\$	204	387	613	995	..	—
Mean income	\$	124	295	498	784	1 590	<b>658</b>
Median income	\$	166	296	499	774	1 367	<b>499</b>
Principal source of income (% of income units)							
Weekly employee income	%	8.7	25.2	68.5	84.4	88.1	<b>54.9</b>
Weekly own business income	%	2.7	4.5	5.6	8.3	8.0	<b>5.8</b>
Weekly government pensions and allowances	%	67.4	62.3	16.7	1.4	**0.0	<b>29.6</b>
Weekly income from other sources	%	9.8	7.9	9.1	5.8	3.9	<b>7.3</b>
Total(a)	%	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
Income unit type (% of income units)							
Couple with dependent children	%	2.9	7.2	18.1	33.5	51.6	<b>22.6</b>
Couple without dependent children	%	6.9	32.8	21.6	23.5	36.5	<b>24.3</b>
One parent	%	2.3	12.9	6.6	5.0	1.4	<b>5.7</b>
Lone person	%	87.8	47.1	53.8	38.0	10.5	<b>47.4</b>
Total	%	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
Earners							
None	%	83.1	64.2	20.1	5.5	2.3	<b>35.1</b>
One	%	14.7	33.0	72.1	66.6	26.4	<b>42.5</b>
Two	%	2.2	2.8	7.8	27.9	71.3	<b>22.4</b>
Total earners	%	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
Dwelling tenure type (% of income units)							
Owners without a mortgage	%	31.3	41.5	26.2	25.8	27.9	<b>30.6</b>
Owners with a mortgage	%	5.7	8.0	17.3	35.8	51.5	<b>23.6</b>
Renters							
State housing authority	%	9.4	7.2	3.5	1.4	*0.6	<b>4.5</b>
Private landlord	%	16.3	21.2	25.3	21.7	14.4	<b>19.8</b>
Other	%	15.0	11.5	15.7	8.1	2.7	<b>10.6</b>
Total renters	%	40.8	39.9	44.5	31.1	17.8	<b>34.8</b>
Other	%	22.3	10.6	12.0	7.2	2.9	<b>11.0</b>
Total	%	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
Estimated number of income units							
Capital city	'000	1 092	1 062	1 163	1 248	1 334	<b>5 899</b>
Rest of State	'000	733	775	652	580	491	<b>3 231</b>
Total	'000	1 825	1 837	1 815	1 828	1 824	<b>9 129</b>

(a) Includes income units with nil or negative income.

Source: Unpublished data, 1997–98 Survey of Income and Housing Costs.

Income units cover a wide variety of individuals and family types, and include varying numbers of people. These range from young single people just out of school, to couples with dependent children, through to elderly retired couples or single people, that is, units at various stages of the life cycle and working career. It is therefore not surprising that income is distributed unevenly across all income units. This was the case in 1997–98 when income units in the lowest quintile (i.e. the lowest 20% of units when ranked according to income) received an average gross weekly income of \$124, compared to \$1,590 received by those in the highest quintile.

Income units in the lowest quintile were mainly single people. One-third of these were living with parents or with relatives. Few people were employed and most relied on government pensions and allowances as their principal source of income.

In comparison, income units in the highest quintile were usually couples with or without dependent children, and most had two earners. Their principal source of income was mainly wages and salaries, with very few relying on government pensions and allowances.

### **Life cycle stages of income units**

Levels of income are related to life cycle stages such as youth and the forming, maturing and dissolving of nuclear families (table 7.2).

In 1997–98, young independent single persons aged under 35 had an average weekly income of \$422. However, this group had a wide range of incomes, resulting partly from the differing attachment to the labour force of young people making the transition from full-time education to full-time work. The mean income of those aged 25–34 was considerably higher than the mean

income of those under 25 (at \$526 and \$335 respectively).

As young people enter into relationships their income rises, as they often have two income earners contributing to their family income. Young couples under 35 with no dependent children received an average of \$1,126 per week. For the majority (82%) of this group both partners were in employment.

For couples the birth of the first child and the early years of child rearing are associated with reduced labour force participation and are often accompanied by a fall in family income. The average weekly income of couples with the eldest child under 5 years old was \$973. Income rises again as the children and parents grow older. Couples whose eldest dependent child was aged 15 years and over had an average income of \$1,231 per week.

The need to provide for dependent children has ended by the time most people reach their mid fifties. These post child-rearing years are accompanied by a decline in income. Couples in the 55–64 age group had an average income of \$726 per week. This group had a wide range of incomes resulting from the transition from full-time employment to retirement.

The considerably lower incomes that accompany retirement are evident in the average incomes of those aged 65 years or over. Couples of this age had an average income of \$455, while single persons over 65 had an average income of \$248. Government pensions formed the main source of income for 66% of the couples and 80% of single people in this age group. About 26% of couples and 17% of single people were living on income from other sources such as superannuation and investments.



## 7.2 LIFE CYCLE GROUPS, Selected Characteristics by Gross Weekly Income—1997–98

	Unit	Single person aged under 35	Couple without dependent children, reference person aged under 35	Couple with dependent children and age of eldest child (years)		Couple without dependent children, reference person aged		Single person aged 65 and over
				Under 5	15–24	55–64	65 and over	
Mean income	\$	422	1 126	973	1 231	726	455	248
Median income	\$	410	1 093	873	1 039	570	356	191
Principal source of income (% of income units)								
Weekly employee income	%	70.9	89.1	79.0	74.5	47.8	4.5	*1.0
Weekly own business income	%	3.2	5.9	8.8	10.7	10.0	3.2	*1.4
Weekly government pensions and allowances	%	16.5	*3.4	10.9	9.8	25.7	66.0	79.7
Weekly income from other sources	%	4.8	**0.5	*0.7	3.8	14.0	25.7	17.3
Total(a)	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Earners								
None	%	23.2	*4.3	10.7	10.1	35.3	87.5	95.5
One	%	76.8	13.9	44.9	27.1	30.1	7.3	4.5
Two	%	..	81.8	44.4	62.7	34.5	5.2	..
Total	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Dwelling tenure type (% of income units)								
Owners without a mortgage	%	1.2	*4.6	12.2	39.6	74.7	85.1	63.9
Owners with a mortgage	%	7.2	50.2	53.6	48.6	18.1	3.3	2.6
Renters								
State housing authority	%	1.2	*1.4	*1.5	*3.0	*0.8	3.1	10.1
Private landlord	%	30.7	39.1	25.3	5.6	*3.4	4.4	5.4
Other	%	30.9	*1.2	*4.2	*1.4	*1.0	*0.9	6.7
Total renters	%	62.8	41.7	31.0	10.0	5.1	8.4	22.2
Other	%	28.7	*3.5	*3.3	*1.8	*2.0	3.1	11.3
Total	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Estimated number of income units	'000	2 208	379	451	646	546	692	896

(a) Includes income units with nil or negative income from all sources.

Source: *Income Distribution, Australia* (6523.0).

## Changes in income, 1994–95 to 1997–98

From 1994–95 to 1997–98, the mean (average) gross weekly income for all income units in private dwellings increased by 10% from \$596 to \$658 (table 7.3). The mean weekly income of the largest group of income units, those who were mainly dependent on wage and salary income, increased by 11% from \$801 to \$888. The mean income of those relying on government cash benefits also increased by 11% over this period. Movements in income from other sources over the period were more volatile. Mean incomes for units dependent on their own businesses were particularly volatile. From 1994–95 to 1997–98,

their income increased by 12%. Mean income of those dependent on other income increased by 30% between 1994–95 and 1997–98.

The degree of inequality in the income distribution of all income units remained almost unchanged between 1994–95 and 1997–98 (table 7.4). Income inequality can be measured by comparing the share of total income received by each quintile group. While the shares of total income received by the income quintile groups changed slightly over the three years, the changes are not statistically significant.

**7.3 ALL INCOME UNITS, Mean Gross Weekly Income by Principal Source of Income**

	Mean weekly income			
	1994–95	1995–96	1996–97	1997–98
	\$	\$	\$	\$
Principal source of income				
Weekly employee income	801	816	844	888
Weekly own business income	850	916	908	956
Weekly government pensions and allowances	231	238	254	256
Weekly income from other sources	420	432	507	546
All income units(a)	596	609	625	658

(a) Includes income units with nil or negative income from all sources.

Source: *Income Distribution, Australia* (6523.0).

**7.4 ALL INCOME UNITS, Percentage Share of Gross Weekly Income by Quintile**

	Percentage share			
	1994–95	1995–96	1996–97	1997–98
	%	%	%	%
Gross weekly income quintile				
Lowest	3.6	3.8	3.8	3.8
Second	9.3	9.1	9.4	9.0
Third	15.2	15.0	15.2	15.0
Fourth	24.0	23.7	24.0	23.9
Highest	47.9	48.3	47.5	48.3
All income units	100.0	100.0	100.0	100.0

Source: *Income Distribution, Australia* (6523.0).

**Household expenditure**

Information about income provides one indicator of the standard of living. However it does not always accurately reflect command over goods and services, particularly where income is variable or where expenditure is financed through running down assets or acquisition of debts. In such cases, the levels and patterns of household expenditure may provide an alternative measure of living standards.

Household expenditure information can be used to examine the relative standards of living of different household types such as those with low incomes, large families, sole parent families and pensioner households.

The latest expenditure information is available from the 1993–94 Household Expenditure Survey. This was the fifth major survey of its kind undertaken by the ABS. It collected detailed information about expenditure, income and characteristics of households in Australia.

The household is used as the basic unit of analysis, because much of the expenditure covers household items. If smaller units are adopted, for

example each person, then it is difficult to attribute to individual household members the use of shared items such as accommodation and household goods.

**Levels of expenditure**

In 1993–94, Australian households spent an average of \$602 per week on goods and services (table 7.5). The level of household expenditure is closely related to characteristics of households, most particularly their income, but also household composition and household size. For example, the proportion of total household expenditure spent on different goods and services differs between households with different main sources of income. In households whose principal source of income was wages and salaries (employee income), the proportion of expenditure on food and non-alcoholic beverages was 18%, compared with 22% in households whose main source of income was government pensions and allowances. Households whose principal source of income was employee income had an average weekly income of \$972, while households whose main source of income was government pensions and allowances had an average weekly income of \$271.

### 7.5 HOUSEHOLD EXPENDITURE AND CHARACTERISTICS, By Principal Source of Household Income—1993–94

	Unit	Employee income	Own business	Super-annuation	Government pensions and allowances	Other	All households
Mean gross weekly income	\$	972	864	495	271	517	723
Mean age of reference person	years	41	44	67	58	59	47
Household composition (% of households)							
Couple only	%	22.4	28.5	50.8	27.9	38.3	25.9
Couple with dependent children only	%	31.5	38.2	3.0	9.7	5.5	23.7
Couple other	%	16.4	15.2	4.6	5.7	5.9	12.4
One parent	%	4.7	1.2	3.3	12.2	4.2	6.6
Lone person	%	12.3	12.2	34.7	38.4	38.3	21.8
Other household types	%	12.7	4.7	3.7	6.1	7.7	9.7
<i>Total</i>	%	100.0	100.0	100.0	100.0	100.0	100.0
Expenditure (as % of total expenditure)							
Current housing costs (selected dwelling)	%	14.4	12.9	8.7	15.6	11.0	14.2
Fuel and power	%	2.4	3.0	3.1	4.1	2.8	2.8
Food and non alcoholic beverages	%	17.6	20.0	17.7	22.0	16.2	18.4
Alcoholic beverages	%	3.0	3.2	2.9	2.5	2.4	2.9
Tobacco	%	1.3	1.4	1.1	2.5	0.9	1.5
Clothing and footwear	%	5.9	5.8	5.4	4.4	5.9	5.6
Household furnishings and equipment	%	6.6	6.6	7.4	6.2	7.3	6.6
Household services and operation	%	4.8	5.9	5.6	6.8	5.6	5.2
Medical care and health expenses	%	4.3	5.4	6.8	4.0	6.4	4.5
Transport	%	16.4	14.1	14.7	12.8	15.2	15.5
Recreation	%	13.5	11.7	13.1	12.1	14.5	13.2
Personal care	%	1.9	2.0	1.9	2.0	1.7	1.9
Miscellaneous commodities and services	%	7.9	8.0	11.7	5.2	10.0	7.6
<i>Total</i>	%	100.0	100.0	100.0	100.0	100.0	100.0
Average weekly expenditure on all commodities and services	\$	744	648	507	333	582	602

Source: Unpublished data, 1993–94 Household Expenditure Survey.

Household expenditure also varies in accordance with stages of the family life cycle, generally rising through the early stages of family creation and, with increasing family size, reaching a peak as children mature to adulthood. In subsequent stages of the life cycle, household expenditure declines as children leave home and household size declines. This trend follows very closely the trend in the level of household income over the life cycle of the family.

### Income support programs of the Department of Family and Community Services

On 1 July 1947, with the passage of the *Social Services Consolidation Act 1947*, all Acts providing social service benefits were amalgamated into the *Social Security Act 1947*. This Act was repealed and replaced with the *Social Security Act 1991* which commenced on 1 July 1991.

The main income support payments provided by the Commonwealth under the 1991 Act for the financial years 1995–99 are listed in table 7.6.

An outline, together with associated statistics, of the main social security payments in effect throughout the 1998–99 financial year is given below.

## 7.6 INCOME SUPPORT PAYMENTS

Type of payment	1995–96 \$'000	1996–97 \$'000	1997–98 \$'000	1998–99 \$'000
<b>Payments made under <i>Social Security Act 1991</i></b>				
The retired				
Age Pension	12 383 929	13 204 658	13 141 895	13 569 056
Wife Pension (Aged)	..	..	254 752	243 433
People with disabilities or the sick				
Carer Payment	..	..	258 474	307 506
Child Disability Allowance	213 658	233 106	248 429	244 896
Disability Support Pension	4 917 412	5 299 148	4 599 452	4 920 223
Wife Pension (DSP)	..	..	599 136	534 069
Disability Wage Supplement(a)	556	2 193	2 034	..
Mobility Allowance	34 149	38 118	41 863	46 137
Rehabilitation Allowance	7	–36	–219	..
Sickness Allowance	354 012	144 280	92 684	93 043
The unemployed				
AUSTUDY Payment(b)	..	..	..	287 173
Fares Allowance(b)	..	..	..	675
Job Search Allowance	3 141 368	..	–47 105	..
Newstart Allowance	2 623 805	6 047 829	5 804 836	5 370 669
Mature Age Allowance	436 551	472 469	443 380	401 698
Partner Allowance	462 547	497 841	532 278	590 185
Pensioner Education Supplement(b)	..	..	..	44 601
Student Financial Supplement(c)	..	..	..	259 745
Youth Allowance(d)	..	..	..	1 843 498
Families with children				
Additional Family Payment	1 828 446	–2 927	..	..
Basic Family Payment	1 013 184	–2 803	..	..
Double Orphan Pension	1 654	1 681	1 778	1 725
Family Allowance	3 036 055	6 284 731	6 363 712	6 391 490
Family Tax Payment	..	288 564	558 735	546 217
Home Child Care Allowance	..	–1 049	..	..
Maternity Allowance	65 165	196 716	183 607	167 085
Parenting Allowance(e)	2 091 321	2 216 628	1 570 502	–17 192
Parenting Payment(f)	..	..	1 455 563	5 402 944
Sole Parent Pension(e)	2 760 105	2 992 322	2 206 233	–18 274
Provision for special circumstances				
Bereavement Allowance	1 296	1 178	997	734
Disaster Relief Payment	..	–12	28	165
Special Benefit	157 088	132 289	95 867	99 585
Widow Class 'B' Pension	464 952	296 905	147 187	105 694
Widow Allowance	88 233	117 273	180 112	227 289
<b>Total</b>	<b>36 122 006</b>	<b>38 550 242</b>	<b>38 894 385</b>	<b>41 667 765</b>
<b>Payments made under other Acts</b>				
Childcare cash rebate(g)	..	..	123 050	117 000
Child Support Trust Account(h)	..	..	31 638	34 778
States Grants Housing Act 1971(i)	..	..	5 500	5 498
Youth Training Allowance(d)(j)	46 514	159 138	158 177	3 699
Unexplained remittances	..	..	266	330
<b>Total Special Appropriations(k)</b>	<b>36 122 006</b>	<b>38 550 242</b>	<b>39 054 839</b>	<b>41 825 371</b>

(a) Disability Wage Supplement was abolished on 1 January 1998. All recipients were transferred to Disability Support Pension.

(b) Replaces, in part, the former AUSTUDY (Department of Employment, Education, Training and Youth Affairs). (c) Previously administered by the (then) Department of Employment, Education, Training and Youth Affairs. (d) From 1 July, 1998, Youth Allowance replaced payments made to certain recipients of the following: Newstart Allowance; Youth Training Allowance; Sickness Allowance and AUSTUDY. (e) Parenting Allowance and Sole Parent Pension replaced by Parenting Payment on 20 March 1998.

(f) Comprising Parenting Payment (Partnered) and Parenting Payment (Sole Parent). (g) Payments made under the *Childcare Rebate Act 1993* (transferred from the Department of Health and Family Services in October 1998). (h) Payments made under the *Child Support (Registration and Collection) Act 1988* (transferred from the Department of the Treasury in October 1998). These payments are to cover shortfalls in the Child Support Trust Account. (i) Payments made under the *States Grants Housing Act 1971*.

(j) Payments made under the *Student and Youth Assistance Act 1973*. (k) Components do not add to total as Youth Training Allowance is also included under Newstart Allowance in this table.

Source: Department of Family and Community Services.

**7.7 AGE PENSIONERS**

	Unit	June 1996	June 1997	June 1998	June 1999
Age group (years)					
60–64	no.	193 988	208 309	187 256	189 410
65–69	no.	464 417	481 624	479 884	478 856
70–74	no.	335 197	364 766	388 474	414 302
75 and over	no.	609 232	625 515	627 003	633 224
Males	no.	570 328	597 859	613 587	634 112
Females	no.	1 032 506	1 082 355	1 069 030	1 081 680
Persons	no.	1 602 834	1 680 214	1 682 617	1 715 792
Wife pensioners (age)	no.	41 125	36 577	36 233	32 196
Total payments in financial year ending 30 June(a)	\$'000	12 383 929	13 204 658	13 396 647	13 812 488

(a) Includes allowances, Rent Assistance, and Wife Pension (age) where applicable.

Source: Department of Family and Community Services.

**Payments for the retired**

The Age Pension is payable to men who are aged 65 years or over and women who are 61 years and 6 months or over, and is subject to Australian residency qualifications. The minimum Age Pension age for women was raised to 61 years and 6 months on 1 July 1999. The minimum Age Pension age for women will continue to increase by six months at two year intervals until 1 July 2013, when it will be 65 years. The number of age pensioners at June for the years 1996 to 1999 is shown in table 7.7.

The Age Pension is means-tested based on pensioners' income and assets.

The Wife Pension (age) is gradually being phased out. New grants of Wife Pension ceased after 30 June 1995. However, women receiving Wife Pension (or who had lodged claims and were entitled to the pension) at that date continue to receive this payment.

New applicants can apply for another type of payment such as Parenting Allowance, Partner Allowance, Carer Pension, Disability Support Pension, Newstart Allowance or Sickness Allowance.

**Payments for people with a disability and the sick****Disability Support Pension (DSP)**

The DSP is paid to a person aged 16 years or over who has a physical, intellectual or psychiatric impairment of at least 20% and who is assessed as being unable to do any work for at least 30 hours

a week at full award wages, or to be retrained for any work, for at least two years. Table 7.8 shows the number of recipients of DSP at June for the years 1996 to 1999.

The DSP for people aged 21 years and over is paid at the same rate as the Age Pension and is subject to the same income and assets tests, except for permanently blind recipients, who are not subject to either the income or assets test. Youth rates apply to those aged under 21 years. These are largely tied to Youth Allowance rates, but include a supplement of \$75.60 per fortnight. Youth rates are not subject to parental income or assets tests. A Pharmaceutical Allowance of \$5.40 per fortnight (\$2.70 per fortnight each for couples) is also paid to people receiving DSP.

Disability Support pensioners and other people with disabilities can gain access to rehabilitation, training, labour market programs or labour force re-entry assistance. Job seekers with disabilities can approach either Centrelink or a FaCS funded specialist disability employment service of their choice. All applications are processed by Centrelink using the Work Ability Tables as the streaming mechanism. Those scoring under 50 are streamed to Centrelink to determine eligibility for Job Network assistance, and those scoring 50 and over are streamed to a FaCS funded specialist employment service. A job seeker does not have to be receiving Disability Support Pension to be eligible to receive assistance from a specialist disability service. Eligibility is not based on the actual receipt of Centrelink payments, but on a person's barriers to employment resulting from a disability.

**7.8 DISABILITY SUPPORT PENSIONERS**

	Unit	June 1996	June 1997	June 1998	June 1999
Age group (years)					
16–19	no.	11 039	12 313	13 178	14 126
20–39	no.	113 450	119 990	124 712	129 600
40–59	no.	277 901	298 530	311 398	326 987
60 and over	no.	96 845	96 681	104 048	106 969
Males	no.	340 256	352 607	361 539	373 340
Females	no.	158 979	174 907	191 797	204 342
Persons	no.	499 235	527 514	553 336	577 682
Wife pensioners (DSP)	no.	107 803	91 307	79 892	68 523
Total payments for financial year ending 30 June(a)	\$'000	4 917 412	5 299 148	5 198 588	5 454 292

(a) Includes allowances, Rent Assistance and Wife Pension (DSP) where applicable.

Source: Department of Family and Community Services.

**Carer Payment**

The Carer Payment, formerly known as Carer Pension, is paid to people who are without adequate means of support because they are providing constant care or supervision to a person aged 16 years or over with a physical, intellectual or psychiatric disability or a person who is frail aged, either permanently or for an extended period (six months or more). The carer must personally provide this level of care or supervision in the private home of the care recipient, but is not required to live in or adjacent to the care recipient's home. The carer must also meet certain Australian residency requirements, with income and assets below the levels where qualification ceases under the pension income and assets tests. The rate of Carer Payment is the same as for other pensions.

From 1 July 1998, eligibility for the Carer Payment was extended to carers of children under 16 years of age with profound disabilities. The eligibility criteria for this payment focus on the high level of care provided by parents and other carers to maintain comfort, sustain life, or attend to a bodily function that the child with a profound disability cannot manage alone. Table 7.9 shows

the number of Carer Payment recipients at June for the years 1996 to 1999.

**Sickness Allowance**

The Sickness Allowance is paid to people aged at least 21 years (students must be aged at least 25 years and in receipt of AUSTUDY), but below Age Pension age, who are temporarily unable to work or continue with their full-time studies due to illness or injury. To be eligible, the person must have a job or study to which they can return. If unemployed people become temporarily incapacitated, they receive Newstart Allowance (NSA) (as a result of changes implemented in March 1996). People on full-pay sick leave do not qualify.

**Child Disability Allowance**

The Child Disability Allowance may be paid to a parent or guardian of a child aged under 16 years or a full-time student aged 16–21 years who lives in the family home.

From 1 July 1998, two levels of assistance were introduced for the Child Disability Allowance, in recognition of the fact that the impact on a family varies according to the level of severity of the child's disability.

**7.9 CARER PAYMENT, By Number of Recipients**

	Unit	June 1996	June 1997	June 1998	June 1999
Type					
Carer Payment (Age)	no.	9 500	10 954	11 740	12 407
Carer Payment (DSP)	no.	13 483	15 735	18 556	21 392
Carer Payment (Other)	no.	2 054	2 869	3 683	5 271
<b>Total</b>	no.	<b>25 037</b>	<b>29 558</b>	<b>33 979</b>	<b>40 070</b>

Source: Department of Family and Community Services.

The first level of assistance provides for a Health Care Card for children who function normally or close to normally for their age, but require substantial additional care and attention because of their disability. Parents qualify for the Health Care Card if the child requires at least 14 hours per week of additional care and attention.

The second level of assistance provides for a fortnightly payment of \$75.60 and a Health Care Card for children with moderate to severe levels of functional disability. For the higher level of entitlement, the level of severity of a disability is determined by the Child Disability Assessment Tool (CDAT). The CDAT measures the level of severity of the disability by assessing whether the child functions according to standards appropriate for his or her age.

The assessment regime includes two lists of recognised disabilities that will permit automatic entry to the program for parents of children with certain conditions.

The Child Disability Allowance is not taxable and is not subject to income or assets tests. The Allowance is not paid where the young person is receiving an income support payment in his or her own right. In June 1999, there were 100,666 customers (106,593 entitled children) in receipt of Child Disability Allowance.

## **Payments for the unemployed**

### **Newstart Allowance (NSA)**

The NSA is paid to people aged 21 years or over and under the Age Pension age who are unemployed and actively searching for work. There are a small number of 18 to 20 year old unemployed customers receiving NSA in 1999 who continued to receive their existing payment following the introduction of Youth Allowance (YA).

From 1 July 1998, NSA for 16 to 20 year olds (and certain 15 year olds) was replaced by YA. Only those people on NSA or Sickness Allowance who were aged 18 to 20 years at 17 June 1997 (the date of YA announcement), and when YA commenced on 1 July 1998, were able to remain on NSA. To qualify for NSA a person must be a permanent resident of Australia and reside in Australia.

Recipients of NSA are required to satisfy an activity test (exemptions apply in certain cases, such as when a person is temporarily incapacitated). A person satisfies the activity test if they are actively seeking, and willing to undertake, suitable paid work, including casual and part-time work. The activity test can also be

satisfied in other ways including, for example, undertaking a course of vocational training, participating in a labour market program, or entering and complying with the terms of an activity agreement requiring the person to engage in specified activities.

From 1 July 1998, Mutual Obligation (MO) requirements were placed on young people (18 to 24 years) unemployed for at least six months. They were required to supplement their normal job search efforts with one of a range of activities that included part-time work, training, voluntary work, Work for the Dole, job search training and intensive employment assistance. From 1 July 1999, MO requirements were extended to 25 to 34 year olds who are unemployed for 12 months or more.

NSA is subject to Allowance Income and Assets Test. Newstart recipients are required to complete a fortnightly statement (in some circumstances this period may be extended) to advise of changes in circumstances that may affect entitlement to NSA or the rate payable, and in most cases to provide details of their job search efforts.

Newstart recipients may also receive Rent Assistance, Remote Area Allowance and Pharmaceutical Allowance.

### **Youth Allowance (YA)**

On 1 July 1998 the government introduced YA for young people. It replaced five former schemes for young people, namely: Youth Training Allowance; AUSTUDY for students aged 16–24 years; Newstart Allowance for the unemployed aged 16–20 years; and Sickness Allowance for 16–20 year olds and those secondary students aged 16 and 17 years attracting more than the minimum rate Family Allowance.

YA is now the main income support payment available to young unemployed people aged 16 to 21, and to students aged from 16 to 25. There are some circumstances where it can be paid to young people under 16 years. It can also be paid to people over 25 where they were enrolled in a course and receiving YA immediately prior to turning 25 and are still continuing in the same course.

YA is a flexible policy which ensures that young people receive the same payment whether they are studying, training, looking for work or are sick, or a combination of these. It recognises that young people can follow several pathways from school to training and financial independence. YA is subject to personal and parental means testing.



To qualify for YA, young people must undertake approved activities, which may include full-time study or a combination of approved activities such as job search, Work for the Dole, literacy and numeracy courses, part-time education, part-time work or voluntary work. The purpose of requiring young people to undertake approved activities in order to receive YA is ultimately to improve a young person's prospects of obtaining suitable work, or to help them in seeking suitable paid work.

Young people under 18 who have not completed Year 12 or equivalent are encouraged to be in full-time education or training. Exemptions are

made for those who are unable to obtain an appropriate training place, have carer responsibilities, are sick, or are in other special circumstances.

### Mature Age Allowance (MAA)

The MAA is a non-activity tested income support payment. This payment recognises the labour market difficulties faced by some older unemployed people who are close to retirement age.

## 7.10 RECIPIENTS OF NEWSTART ALLOWANCE

	Unit	June 1994	June 1995	June 1996	June 1997	June 1998	May 1999
<b>SHORT-TERM CUSTOMERS (12 MONTHS OR LESS)</b>							
Age group (years)							
Less than 21	no.	113 578	86 261	78 535	62 975	62 134	39
21–34	no.	180 886	180 135	216 818	181 147	166 023	136 232
35–54	no.	104 148	102 076	132 935	118 903	103 087	93 187
55–59	no.	16 690	14 574	18 507	17 185	13 743	12 834
60 and over	no.	13 819	10 785	10 231	7 551	6 790	6 941
Males	no.	288 376	268 257	310 366	262 583	234 551	171 764
Females	no.	140 745	125 574	146 660	125 178	117 226	77 469
Persons	no.	429 121	393 831	457 026	387 761	351 777	249 233
<b>LONG-TERM CUSTOMERS (OVER 12 MONTHS)</b>							
Age group (years)							
Less than 21	no.	49 164	42 545	37 153	40 985	41 082	13 197
21–34	no.	187 233	164 836	140 955	163 140	172 208	171 196
35–54	no.	148 147	139 316	125 022	146 861	162 673	163 224
55–59	no.	28 601	29 194	27 025	29 451	29 880	28 986
60 and over	no.	6 332	3 937	3 361	1 661	2 192	3 053
Males	no.	311 881	279 936	240 907	272 592	289 458	273 366
Females	no.	107 596	99 892	92 609	109 506	118 577	106 290
Persons	no.	419 477	379 828	333 516	382 098	408 035	379 656
<b>SHORT- AND LONG-TERM CUSTOMERS</b>							
Age group (years)							
Less than 21	no.	162 742	128 826	115 688	103 960	103 216	13 236
21–34	no.	368 119	344 971	357 773	344 287	338 231	307 428
35–54	no.	304 260	241 392	257 957	265 764	265 760	256 411
55–59	no.	45 291	43 768	45 532	46 636	43 623	41 820
60 and over	no.	20 151	14 722	13 592	9 212	8 982	9 994
Males	no.	600 257	548 193	551 273	535 175	524 009	445 130
Females	no.	248 341	225 466	239 269	234 684	235 803	183 759
Persons	no.	848 598	773 659	790 542	769 859	759 812	628 889
Total financial payments for financial year ending 30 June(a)	\$'000	7 597 818	7 061 006	5 765 174	6 047 829	5 757 731	5 370 669

(a) Total payments for June 1994 and June 1995 include payments to partners of married allowees. From 1 July 1995 they are required to claim payment in their own right, and most expenditure is incurred under Partner Allowance (PA) and Parenting Allowance.

Source: Department of Family and Community Services.



To qualify for MAA from 1 July 1996, a person must have turned 60 years of age and be less than Age Pension age; have no recent work force experience (defined as at least 20 hours a week for a total of 13 weeks or more in the previous 12 months); and be an Australian resident and in Australia; and either:

- be receiving Newstart Allowance and have been on an income support payment for a continuous period of at least nine months immediately before claiming MAA; or
- have received at least one payment of a Social Security pension, Widow Allowance, Partner Allowance, Sickness Allowance, Department of Veterans' Affairs (DVA) service pension, AUSTUDY payment or Parenting Payment (other than non-benefit Parenting Payment (partnered)) at any time within the 13 weeks immediately before claiming; or
- have previously received MAA.

Until 1 July 1995, Mature Age Partner Allowance was paid to partners of MAA recipients. This payment is gradually being phased out, with no new grants since that date.

Since 1 July 1996, MAA has been paid under allowance income and assets test rather than under pension income and assets tests.

MAA recipients are eligible to receive a Pensioner Concession Card.

### Partner Allowance (PA)

Prior to the introduction of PA, recipients with a partner received a married rate of allowance which included an amount for the support of a dependent spouse. In September 1994, this combined married rate of payment was abolished

and half the former married rate was paid directly to the dependent partner as PA.

Since 1 July 1995 the payment has only been granted to persons born on or before 1 July 1955 who have no dependent children and no recent workforce experience. It is payable to partners in receipt of Newstart Allowance, Special Benefit, Rehabilitation Allowance, Age Pension, Disability Support Pension, Disability Wage Supplement, Mature Age Allowance or the Department of Veterans' Affairs Service Pension.

PA is a non-activity tested payment subject to allowance income and assets tests. Partners who do not qualify for PA need to qualify for another income support payment in their own right, such as Parenting Payment or Newstart Allowance.

### Widow Allowance (WA)

WA is a non-activity tested income support payment. It recognises the labour market difficulties faced by single older women who may have depended on the support of their partner.

WA is available to women over 50 years of age who were widowed, divorced or separated (including separated de facto) after the age of 40. To qualify for WA, an older woman must have no recent workforce experience (defined as at least 20 hours a week for a total of 13 weeks or more in the previous 12 months); currently be in Australia and not be subject to an assurance of support; and:

- have been an Australian resident for a continuous period of at least 26 weeks immediately before claiming; or
- have at any time been an Australian resident for a continuous period of at least 10 years; or
- have a qualifying residence exemption; or
- along with her former partner, were both Australian residents at the time she became widowed, divorced or separated.

### 7.11 OTHER LABOUR MARKET RELATED PAYMENTS

	Unit	June 1994	June 1995	June 1996	June 1997	June 1998	May 1999
Mature Age Allowance(a)	no.	37 758	54 118	57 886	60 737	55 132	47 360
Mature Age Allowance(b)	\$'000	77 555	358 489	443 778	472 469	443 380	401 698
Partner Allowance(c)	no.	..	216 739	69 840	72 117	77 746	81 804
Partner Allowance	\$'000	..	..	462 547	497 841	532 278	590 185
Widow Allowance	no.	..	8 818	11 748	17 468	24 656	27 822
Widow Allowance	\$'000	..	3 104	88 233	117 273	180 112	227 289

(a) Mature Age Allowance includes Mature Age Partner Allowance customers. (b) Annual expenditure excludes Rent Assistance but includes Running Costs. (c) Partner Allowance expenditure for 1994-95 was included with the Newstart Allowance appropriation.

Source: Department of Family and Community Services, Annual Report 1999.

WA is paid at allowance rates and under allowance income and assets tests. Recipients of WA may also be eligible for Rent Assistance, Remote Area Allowance and Pharmaceutical Allowance.

WA will be phased out from 1 July 2005, with new grants only to be made to women born on or before 1 July 1955.

## Payments for families with children

### Family Allowance

Family Allowance is paid for dependent children aged under 16 years and dependent full-time students aged 16–18 years who are not eligible for a payment such as Youth Allowance or ABSTUDY.

The rate of Family Allowance depends on the family's income and assets, the number and ages of children in the family, whether the family is renting privately and whether the parent is single. Family Allowance is reduced by 50 cents for each dollar of income over the income free threshold (in 1999 this amount was \$23,550 for a one child family) until the minimum Family Allowance rate (\$23.70) is reached. No Family Allowance is payable if family income is more than \$66,403 (plus \$3,322 for each child after the first).

Multiple Birth Allowance is payable with Family Allowance in respect of multiple (three or more) births until the children reach six years of age.

Payments are made to the primary carer of the children. Family Allowance can also be paid to approved charitable, religious or government institutions for children in their care.

Table 7.12 shows the number of customers receiving Family Allowance and the number of children for whom payment is made.

### Parenting Payment

The Parenting Payment was introduced in March 1998 incorporating the previous Sole Parent Pension and Parenting Allowance. It has two main streams:

- Parenting Payment (single) which is payable to lone parents under pension rates and conditions, with the maximum payment equal to the Age Pension (single rate); and
- Parenting Payment (partnered) which is payable to partnered parents. This stream has two components:
  - Basic Parenting Payment, which is free of an assets test and is income tested only on the income of the primary carer; and
  - Additional Parenting Payment, which is paid under allowance rates and conditions. It is taxable, income tested on the income of both the claimant and the partner, and is assets tested.

To qualify for the Parenting Payment, a person must:

- care for a dependent child or children aged under 16 years;
- have income and assets under certain amounts; and
- have been an Australian resident for at least two years, or be a refugee, or have become a lone parent while an Australian resident.

**7.12 FAMILY ALLOWANCE**

	Unit	June 1996	June 1997	June 1998	June 1999
Family Allowance at the minimum rate					
Customers	no.	928 523	893 207	866 440	839 580
Children	no.	1 738 323	1 669 930	1 619 438	1 566 845
Family Allowance above the minimum rate					
Customers	no.	883 934	918 538	909 223	896 192
Children	no.	1 759 144	1 821 230	1 799 427	1 770 622
Total on Family Allowance					
Customers	no.	1 812 457	1 811 745	1 775 663	1 735 762
Children	no.	3 497 467	3 491 160	3 418 865	3 337 467
Total payments for financial year ending 30 June	\$'000	5 877 685	6 279 001	6 363 712	6 391 490

Source: Department of Family and Community Services.

Table 7.13 shows the number of customers receiving Parenting Payment (single) at end June for the years 1996–99, and total payments for those financial years. Table 7.14 shows the corresponding information for Parenting Payment (partnered).

### Jobs, Education and Training (JET) Program

The JET program is a joint program of the Department of Family and Community Services (FaCS); the Department of Employment, Workplace Relations and Small Business (DEWRSB) and the Department of Education, Training and Youth Affairs (DETYA). FaCS has primary responsibility for overall program management. Centrelink has responsibility for delivery of the JET program.

JET is a voluntary program. It aims to improve the financial circumstances of eligible customers by assisting with skill development and/or aiding their entry or re-entry into the workforce to achieve higher levels of earnings from employment.

JET officers assist eligible customers overcome barriers to workforce participation. The types of assistance provided include: development of a plan to achieve labour market readiness; access to education, training and employment

assistance; referrals to government and community services; and child care assistance.

The JET eligible income support payments include Parenting Payment (single) recipients; Parenting Payment (partnered) recipients; Widow 'B' and Carer Payment recipients; Widow and Partner Allowees; and recipients of Special Benefit who would be eligible for Parenting Payment (single) except for residency requirements.

JET targets participation of three groups: Parenting Payment recipients; teenagers; and recipients who earn less than \$150 per week and whose youngest child is 6 or 12 years old (i.e. just beginning primary or secondary school).

There were 181,819 customers in the JET program at June 1998.

### Pensioner Education Supplement (PES)

The PES aims to assist pensioners with the costs associated with study, and is available to both full-time students and those approved to undertake at least 25% of a full-time study load. PES is a non-taxable, non-income and assets-tested payment of \$60.00 per fortnight (see below), available to certain FaCS and Department of Veterans' Affairs (DVA) pensioners who undertake study. In 1998 there were approximately 46,000 PES customers.

#### 7.13 PARENTING PAYMENT (SINGLE)

	Unit	June 1996	June 1997	June 1998	June 1999
Age group (years)					
Under 20	no.	10 265	10 477	10 478	10 676
20–29	no.	109 334	112 797	114 570	116 760
30–39	no.	144 205	150 652	155 740	159 497
40–49	no.	69 569	75 114	80 626	86 298
50–59	no.	8 606	9 531	10 435	11 258
60 and over	no.	311	322	437	453
Males	no.	21 964	23 920	25 546	27 128
Females	no.	320 326	334 973	346 740	357 814
Persons	no.	342 290	358 893	372 286	384 942
Total payments for financial year ending 30 June	\$'000	2 760 105	2 992 322	3 079 547	2 135 987

Source: Department of Family and Community Services.

#### 7.14 PARENTING PAYMENT (PARTNERED)

	Unit	June 1996	June 1997	June 1998	June 1999
Non-benefit Parenting Allowance	no.	422 604	425 378	407 345	394 966
Benefit Parenting Allowance	no.	237 743	239 488	238 386	230 482
Total	no.	660 347	664 866	645 731	625 478
Total payments for financial year ending 30 June	\$'000	2 019 321	2 216 628	2 152 752	3 266 957

Source: Department of Family and Community Services.

From March 2000, the rate of PES for students with a study load of less than 50% will be \$30.00 per fortnight. Disability support pensioners and recipients of an invalidity service pension or an invalidity income support supplement from DVA will continue to receive \$60.00 per fortnight.

### **Child Support Scheme**

The Child Support Scheme is jointly administered by FaCS and the Attorney-General's Department.

The resident parent can apply to the Child Support Agency (CSA) which will assess the amount of child support payable using a formula set out in legislation. The CSA can collect child support payments from liable parents. Payments used to be distributed to the other parent by Centrelink. In March 1999 the CSA took over this function.

Alternatively, resident parents can collect child support privately, provided that, where they receive the higher rate of Family Allowance, child support is at least the amount payable under the formula or court order.

The largest Family Allowance subgroup (receiving more than the minimum rate Family Allowance) is Parent Payment (single) recipients. At March 1999, 42% of Parenting Payment (single) recipients were declaring child support, compared with 26% at the beginning of the Scheme in 1988.

### **Family Tax Payment**

The Family Tax Payment was introduced on 1 January 1997 and is part of the Government's Family Tax Initiative to provide additional assistance to families with children. The majority of eligible families (those with a taxable income of less than \$70,000 and one child, and a further \$3,000 for each additional child), receive assistance through the taxation system. However, low income families receive an equivalent level of assistance in the form of a fortnightly cash payment—the Family Tax Payment, through FaCS. There were 887,297 Family Tax Payment customers at March 1999.

### **Maternity Allowance**

Maternity Allowance was introduced from 1 February 1996. This payment assists families with the costs associated with a new baby (including forgone income as a result of the mother being unable to participate in the paid workforce around the time of the birth of the child). Maternity Allowance is a non-taxable, lump sum payment of \$750. It is paid for each new

child to families who meet the Family Allowance residence, income and assets tests within 13 weeks of the child's birth.

From 1 January 1998, Maternity Immunisation Allowance was introduced as part of the initiative to boost immunisation rates. The rate of Maternity Allowance was reduced from \$950 to \$750 at that time. Maternity Immunisation Allowance of \$200 is paid after a child reaches 18 months, and upon proof of age-specific immunisation. Families are not disadvantaged in cases where children are not immunised for medical reasons or where parents conscientiously object to immunisation.

## **Other payments**

### **Special Benefit**

The Special Benefit may be granted to people not qualified for any other income support payment, but who are unable to earn a sufficient livelihood for themselves and their dependants and are in financial hardship. To qualify, a person must be in Australia and an Australian resident, or have a qualifying residence exemption, or hold a specified visa sub class. The rate at which Special Benefit is payable is discretionary, but cannot exceed the applicable Newstart or Youth Allowance, Family Allowance or AUSTUDY rate.

Payment of Special Benefit is subject to an income test, an assets test and an available funds test. The assets test is identical to that applying to Newstart Allowance customers, but both the income test and the available funds test are specific to Special Benefit.

### **Ancillary payments**

Ancillary payments provide targeted financial assistance to income support recipients to help them meet expenses associated with a range of specific circumstances. These circumstances include residence in remote areas, having a telephone connected, purchase of pharmaceutical prescriptions, and financial adjustment following the death of a partner, child or care recipient.

Each of the ancillary payments has a different set of qualifications attached. A person's eligibility for any of the ancillary payments depends upon their prior eligibility for income support. Eligibility for these payments is assessed as part of claiming income support.

## Concessions

Centrelink issues concession cards on behalf of FaCS to people who receive a means tested income support payment or who qualify for an income tested card. These cards are the Pensioner Concession Card, the Health Care Card and the Commonwealth Seniors Health Card.

The Commonwealth's primary purpose in issuing a concession card is to assist the cardholder and the cardholder's family with the cost of prescription medicines. State and local governments may provide cardholders with a reduction in household rates, energy bills, public transport fares, motor vehicle registration and a range of other health, educational and recreational concessions. Some private organisations also provide concessions on various goods and services to holders of Commonwealth concession cards.

## International agreements and payment of pensions abroad

Under Australia's social security law, pensions for old age, severe disability and widowhood can usually be permanently paid abroad. Pensions for some other contingencies can be paid outside Australia for periods of up to 12 months, except in New Zealand where the recipient will normally have to apply to the New Zealand Government for a payment. As at July 1999, Australia was paying more than 54,000 pensions to residents and former residents who were absent from Australia for more than 12 months. At December 1998, other countries' social security systems were making about 243,000 similar payments to Australian pensioners.

Australia has social security agreements with Austria, Canada, Cyprus, Ireland, Italy, Malta, New Zealand, Portugal, Spain, The Netherlands, and the United Kingdom, although Australia has given the United Kingdom notice of termination of the agreement. A social security agreement was signed with Denmark on 1 July 1999 and will come into force in late 2000.

Negotiations to extend Australia's social security agreement network are underway with Chile, Croatia, Norway, Finland, Germany, Slovenia and Switzerland. Australia has also had preliminary discussions with Greece, Turkey and the USA.

The agreements that have been made form part of Australia's social security law. They enhance people's access to social security benefits from partners to the agreements and guarantee the

payment of those benefits when people move between countries.

Apart from New Zealand and the United Kingdom with which Australia has older style host country agreements, Australia negotiates social security agreements based on a principle of shared responsibility, so that countries in which individuals may have lived and worked, contribute towards social security payments for those individuals.

Some agreements will eventually also contain provisions to avoid double coverage. For example, non-resident employees and their employers can be exempted from the requirement to make superannuation guarantee contributions in Australia in return for similar exemptions in the other country.

## Centrelink

Centrelink is a government agency which delivers a range of Commonwealth services to the Australian community. Centrelink is accountable, through its Board, to the Minister for Family and Community Services and the Commonwealth Parliament.

The agency came into existence on 1 July 1997 and was officially launched on 24 September 1997. Centrelink was set up to provide assistance to a range of customers in one place. It provides various services on behalf of a number of departments, including the Departments of Family and Community Services; Education, Training and Youth Affairs; Health and Aged Care; Employment, Workplace Relations and Small Business; Agriculture, Fisheries and Forestry-Australia; and Transport and Regional Services.

Centrelink's customers include the retired, families, the unemployed, the short-term incapacitated, people with a disability, carers, widows, primary producers, students and young people.

Centrelink is an Australia-wide organisation which reaches out to the remotest areas of the country through an extensive national network of Customer Service Centres and Call Centres. Customer Service Centres provide:

- all services previously provided by the former Department of Social Security, as well as child care and student assistance payments and services;

- registration and acceptance of all new applicants for income support and employment assistance;
- self-help job search facilities including: access to a national job vacancies database via touchscreens; access to photocopiers, telephones and facsimile machines; and access to computers to prepare job applications;
- referrals for employment assistance; and
- referrals to specialist labour market assistance services for disadvantaged groups.

Centrelink also offers customers personalised assistance through various specialist services. These include:

- social workers who are available from all Customer Service Centres and Call Service Centres. They provide assistance to customers with financial, personal or family problems and refer them to relevant community support services;
- the Financial Information Service (FIS), which gives free information to help current and future customers to improve their standard of living by using their own money to the best advantage. FIS Officers are available from most Customer Service Centres;
- Retirement Service Centres which provide a dedicated, 'all of government' approach to providing services to pensioners, self-funded retirees and anyone needing information on how to plan for their retirement years;
- Family Service Centres which are designed to provide a 'one stop shop' for people seeking access to, and information about government assistance available to families;
- Youth Teams and Specialist Youth Servicing Units which assist young people to access educational, labour market, job search, housing, health and general welfare assistance available through government programs and services;
- Centrelink Career Information Centres to provide job seekers with the opportunities to locate and apply for jobs, as well as specialist services to customers with a disability and their carers. These staff locate information to help people decide on or plan a career path;
- Centrelink Disability Officers to provide specialist services to customers with a disability and their carers. These staff, located in Centrelink Customer Service Centres, can assess eligibility for income support, provide advice and assistance on a range of issues including rehabilitation, and refer clients to specialist employment providers;
- Community Service Officers to help homeless people understand and access assistance available to them. Community Service Officers provide services to customers in hostels, refuges and drop-in centres where homeless people gather and feel more comfortable; and
- a number of services to ensure access to Centrelink by people from diverse cultural and linguistic backgrounds. These services include:
  - the Centrelink Multilingual Service, which provides assistance from Multilingual Service Officers, as well as translation and interpreting assistance. Multilingual information products are also available; and
  - a variety of services for Aboriginal and Torres Strait Islander people, such as help from Indigenous Service Officers, Remote Visiting Teams, a Community Agent Program and an Interpreter Service.

Centrelink aims to continually improve its performance by keeping abreast of, and using, the latest on-line facilities and improved face-to-face, mobile, telephone and interactive services.

## Community support programs of the Department of Family and Community Services

### Family and Children's Services

The objective of the Family and Children's Services Program is to improve the quality of life of families and children at home, at work and in the general community.

### Commonwealth Child Care Program

The objective of the Commonwealth Child Care Program is to assist families with dependent children to participate in the workforce and in the general community by supporting the provision of affordable, quality child care. Assistance is available under the Program to improve the choice, affordability, supply and quality of child care.

Child care services funded under the Program include centre-based long day care, family day care, outside school hours care, vacation care, multifunctional centres (providing a mix of service types) and occasional care. There are also



mobile and other innovative services for rural and remote areas. Commonwealth funded child care places have increased from 124,000 in December 1990 to 339,400 in June 1998.

To help families with the cost of child care, Commonwealth financial subsidies currently include:

- Childcare Assistance to low and middle income families currently paid directly to services on behalf of eligible families. Services then reduce the fees that these families have to pay; and
- The Childcare Rebate, which assists families with their work-related child care expenses by providing a rebate of 30% of the family's out-of-pocket child care expenses. Families with income over the Family Tax Initiative cutoffs (\$70,000 for one child and \$3,000 for each additional child) receive a rebate of 20% of the family's out-of-pocket expenses.

As part of the Tax Reform package, the two existing forms of assistance (Childcare Assistance and the Childcare Rebate) are to be combined into one Childcare Benefit (CCB) from 1 July 2000. The CCB greatly simplifies the system, enabling families to more readily understand and access assistance through one program under one set of rules.

### **Services provided under the Child Care Program**

The services funded under the program include:

- centre-based long day care, by private and community operators for eight or more hours per day on five days a week for at least 48 weeks of the year, provides long day care predominantly for children under school age;
- Family Day Care (FDC), involving a network of individuals who provide child care in their own homes for other people's children, is aimed primarily at children aged 0–5, but can also assist school age children up to 12 years old (and beyond in special or emergency situations);
- outside school hours and vacation care, which operates before and after school and during holiday periods for children aged 5–12;
- multifunctional centres operating in rural and remote areas and meet the care needs of both working and non-working parents. These centres offer a range of service types from one location;

- Specific assistance to JET clients (people receiving pensions or payments through Centrelink because they are sole parents, carers, widowed or low income families) to access child care while they undertake training or study courses and when they first start work. If they are unable to obtain a Commonwealth funded child care place, temporary child care arrangements can be made;
- innovative and flexible services in rural and remote areas (where mainstream services cannot be sustained), developed to meet specific needs of communities;
- occasional care, which provides an alternative for parents at home with under school age children to help them meet other demands such as attending appointments, but can also be used for work related care;
- multifunctional Aboriginal Children's Services (MACS), which provide a range of child care within one flexible service, to meet the social and developmental needs of Aboriginal and Torres Strait Islander children;
- Supplementary Services (SUPS), which support child care services to improve access for children with additional needs and to improve the quality of care provided. Children with additional needs include those from diverse cultural backgrounds, including Aboriginal and Torres Strait Islander and Australian South Sea Islander children, as well as children with a disability. The Special Needs Subsidy Scheme (SNSS) is an extension of the SUPS program, established to enable children with high ongoing support needs, particularly children with disabilities, to access appropriate care in mainstream child care services. Special Services support alternatives to mainstream services for special needs groups in areas where mainstream services are inappropriate or nonexistent. Many of these services are targeted to children from an Aboriginal or Torres Strait Islander background and those living in rural and remote areas; and
- services which support child care quality (e.g. in-service training, resources and advice).

### **Quality assurance for child care services**

The Quality Improvement and Accreditation System (QIAS) for long day care centres started in January 1994. The objective of the system is to ensure good quality care for all children in long day care centres approved to receive child care assistance. The National Childcare Accreditation

Council is funded by the Government to administer the system. Funding for training and support is also provided to assist centres to participate in the system.

The QIAS is currently under review by the Commonwealth Child Care Advisory Council. The review is investigating ways to streamline the system, while supporting its philosophy of systematic quality improvement, meeting individual children's needs, validated by peer review. The Council expects to finalise its report on the review by February 2000.

### **Family Services Sub-Program**

The objective of the Family Services Sub-Program is to support families and people in crisis, with a particular focus on assisting disadvantaged families, children at risk and homeless people.

### **Supported Accommodation Assistance Program (SAAP)**

The SAAP is a joint Commonwealth and State/Territory program providing services to people who are homeless or at risk of homelessness. The national evaluation of SAAP III, covering the period 1994–99, found that significant progress had been made in addressing reform initiatives, particularly in relation to data collection, case management and strategic planning.

Planning for SAAP IV has now started, with a focus on enhancing program performance to improve client outcomes.

For information on crisis accommodation see the section *Crisis Accommodation* in *Chapter 8, Housing*.

The Commonwealth has allocated about \$650m over the next five years to 2003–04 for the continuation of the program. The 1999–2000 Federal Budget provided \$45m over six years to meet wage related costs in some States/Territories, with a further \$45m, announced in the context of tax reform, to start in 2000–01.

### **Partnerships Against Domestic Violence**

About \$5.2m has been made available to SAAP over the three years to June 2001 through the Commonwealth Government's new national strategy to combat domestic violence, Partnerships Against Domestic Violence.

Early intervention projects are being established to test innovative service responses to families

experiencing domestic violence (funding of \$1.5m) and to adolescent boys who have experienced or witnessed domestic violence and are at risk of becoming offenders (\$0.5m). Funds of \$3.2m have been dedicated to continue and expand the Domestic Violence Rural and Remote Initiative, through which services providing more effective responses to domestic violence are being established in isolated and rural communities.

### **Youth Homelessness Pilot Program (YHPP)**

In 1997–98, \$11.2m was provided to fund 26 pilot projects across Australia under the YHPP. The Pilot Program aimed to provide early intervention into family situations which might otherwise have caused adolescent children (aged 12 to 18) to leave home earlier than desirable. It used a range of intervention strategies including counselling, mediation and practical support.

By July 1998, 26 YHPP projects had worked intensively with around 2,700 young people and 2,000 parents (projects commenced operation from early 1997).

The Pilot Program was extended to June 1999 to allow the innovative work to continue while the Government considered the final report of the Prime Ministerial Youth Homelessness Taskforce.

The final report of the Taskforce, *Putting Families in the Picture*, was released in November 1998. It made a number of recommendations based on the finding of the Pilot Program. In December 1998 the Prime Minister announced a commitment of \$60m over four years to fund a new youth homelessness early intervention program, with services to commence operation from October 1999.

### **Emergency Relief Program**

The Emergency Relief Program, funded by the Commonwealth Government, is administered by a variety of community, welfare and religious organisations. Funds are distributed to some 900 agencies with 1,300 outlets to assist people in financial crisis. Funding for 1999–2000 is over \$24m.

The Commonwealth is providing \$12m over four years from 1998–99 to continue funding programs that support parents and protect children from abuse and neglect. This includes sponsoring and promoting evaluation and research which informs government policy on strengthening family relationships, parenting and the prevention of child abuse and neglect.



Funding will ensure the continuation of initiatives previously introduced.

### **National Child Protection Clearinghouse**

The National Child Protection Clearinghouse, within the Australian Institute of Family Studies, is funded to collect and distribute information on child abuse and neglect to policy makers, researchers, service providers and others who work in the area, or have an interest in these issues. The Clearinghouse produces newsletters and research papers on child abuse prevention issues and is currently conducting a comprehensive State by State audit of all child abuse prevention programs.

### **National Council for the Prevention of Child Abuse (NCPCA)**

The NCPCA provides the Government with community perspectives, advice and recommendations on child protection issues, with a focus on preventing child abuse and neglect. Over the next 18 months the Council's research program will concentrate on projects that evaluate intervention and preventative programs, including focus on the State by State audit of child abuse prevention programs. As a means of increasing community awareness of child abuse issues and giving recognition to achievements in this field, the Council initiated the National Child Abuse Prevention Awards.

### **Good Beginnings pilot project**

An evaluation is underway of the first 18 months of the 'Good Beginnings' national pilot parenting project based on home visiting. Initial results indicate positive outcomes for the 117 families who participated in the program, for the community parents who were the home visitors, and for the communities where the pilots were located (Sydney, Hobart, Moe and Katherine).

### **Playgroup Associations**

The Commonwealth provides a total of \$1.6m recurrent annual funding to Playgroup Associations in each State and Territory. In providing these funds, the Commonwealth's objective is to recognise and support the needs of people caring for children at home by:

- providing children aged under 5, who are at home, with the opportunity to interact with other children in the same age group; and
- providing carers at home with the opportunity to interact with other adults and to observe

and encourage the social interaction of the children.

The 1997 Budget provided additional annual funding of \$1m, for the three financial years from 1998–99, to increase access to playgroups for families who were affected by the 20 hour limit on Childcare Assistance for non-work-related care.

### **Youth Activity Services (YAS)**

The YAS Program aims to keep young people engaged with their community. Under the program, over \$3.5m a year is distributed to about 90 sponsors throughout Australia to provide a range of innovative activities, generally after school hours, for young people aged 11 to 16 in disadvantaged areas. An additional \$2m a year is distributed to over 80 of these sponsors for the employment of part-time family support workers (Family Liaison Workers), to support families with adolescent children.

### **Family and Community Networks Initiative (F&CNI)**

F&CNI is a four year pilot program aimed at developing the capacity of families and communities to respond effectively to local issues. The principal aims of the initiative are to improve access to information and services relevant to families and community organisations; and to enhance the capacity of communities and services to work together more effectively to address the needs of families and communities.

The budget for the F&CNI is \$7.9m over four years. There are three key components: funding of community networking projects; funding of one-off projects; and development of a national Family and Community Services information Internet site.

The community networking projects will facilitate productive social networks between individuals, families and organisations for collaborative action to address local issues. These projects will also explore and promote the use of information technology as a tool for accessing information, developing networks and organising action.

Funds for one-off projects will be allocated for time-limited initiatives and purposes rather than projects requiring recurrent funding. These projects will contribute to the F&CNI objectives.

The Internet site element of the F&CNI will improve access to comprehensive, quality information relevant to families and community

agencies, and facilitate effective electronic networking between families, community groups and service agencies. The Internet site will be available to anyone with access to an Internet-connected computer (including public access computers).

### **Business and Community Partnerships**

This initiative provides funding to enhance linkages between the corporate and community sectors. It underpins the Government's belief that by working together, business, community and Government organisations will be more effective in their efforts to strengthen families and support sporting, cultural, educational, research and community welfare activities.

The initiative aims to encourage business and communities to develop strategic partnerships and to channel corporate generosity into the creation of stronger, more vibrant and self-reliant communities.

### **Strengthening and supporting families coping with illicit drugs**

In the 1999–2000 Budget the Commonwealth Government announced a measure to assist communities and community groups to provide support to families affected by illicit drug use.

Funding of \$11m over four years has been provided to the Department of Family and Community Services to fund and administer a range of early intervention and outreach strategies for families dealing with drug problems. Funding for the first year (1999–2000) is \$2m, with about \$3m for each of the three successive years.

## **Disability programs**

### **People with disabilities**

The *Disability Services Act 1986* was introduced to expand opportunities for the participation of people with disabilities in the Australian community. Under the Act, the Commonwealth Government provides grants for the provision of services to support people with disabilities,

particularly in the labour market. Disability Programs promote participation and choice in work and community life by maximising delivery of services and targeting income support to assist people with disabilities in their pursuit of increased social and economic participation.

Under the Commonwealth/State Disability Agreement, the Commonwealth has responsibility for the provision of employment services for people with disabilities. The Commonwealth also provides funds to assist the States and Territories in the planning, policy setting and management of accommodation and other related services for people with disabilities. Areas such as advocacy and research and development continue to be a responsibility of both levels of government.

Disability employment assistance takes account of the differing circumstances, needs, aspirations and abilities of each person with a disability. Specialist employment services assist people with disabilities in job search and job placement, and provide individualised on-the-job training and support.

The Commonwealth Government is exploring options for improving the delivery of specialised employment assistance for people with disabilities. From 1 July 1998, improved referral processes were introduced to better target assistance and improve the choices for job seekers through the introduction of nationally consistent eligibility assessment streaming arrangements.

In 1994, the Commonwealth Disability Strategy was adopted as a ten-year policy and planning framework for Commonwealth government departments and authorities, to improve access to their programs, services and facilities for people with disabilities.

The Strategy was adopted in response to the *Commonwealth Disability Discrimination Act 1992*, which makes discrimination on the grounds of disability unlawful in relation to employment, education, accommodation, transport and the provision of goods and services.

## There's no place like home

Results from the Survey of Disability, Ageing and Carer's 1998 show that the majority of Australians (89%) live in a private home with at least one other person. This is also the case for three-quarters of people with disabilities (table 7.15).

Paradoxically, people with disabilities are more likely than others to live alone. About 18% of all people with disabilities live alone, compared to 6% with no disability. As many as one in eight with profound or severe restrictions (see definitions below) live alone and must rely on ex-household carers. Disability has a greater impact on the living arrangements of people aged 15 to 64 than it does for older people.

Of all people with disabilities, 58% are aged 15 to 64, and of those with profound or severe restrictions, one in ten lives on their own. In this age group, 15% of people with a disability live alone, compared with 7% of those with no disability.

Older people (those aged 65 and over) are more likely to live alone, regardless of whether or not they have a disability. Many older people living alone have a history of living in a family home, from which children have moved on and spouses or partners have died or needed out-of-home care. Some 28% of older people with no disability lived alone, compared with 27% of those who have a disability, and 20% who have a severe or profound restriction.

Nursing home and aged care hostels continue to make a contribution. Some 7% of older people live in cared accommodation because of their high level of need for support. Retirement villages specify mature age limits and are intended for retired people, but are not necessarily targeted to people with disabilities. Some villages have only independent housing, some have cared accommodation, and others have a mix of accommodation options. The 4% of older people who live in retirement villages include people with and without a disability. Almost half of retirement village residents reported a need for help or supervision, some or all of the time, with self care, mobility or communication.

### Disability definitions

*Disability identification:* a person has a disability if he/she has one of the following conditions, that has lasted or is likely to last for six months or more:

- loss of sight (not corrected by glasses);
- loss of hearing (with difficulty communicating or use of aids);
- chronic or recurring pain that restricts everyday activities;
- breathing difficulties that restrict everyday activities;
- blackouts, fits or loss of consciousness;
- difficulty learning or understanding;
- incomplete use of arms or fingers;
- difficulty gripping;
- incomplete use of feet or legs;
- a nervous or emotional condition that restricts everyday activities;
- restriction in physical activities or physical work;
- disfigurement or deformity;
- needing help or supervision because of mental illness or condition;
- head injury, stroke or other brain damage with long-term effects that restrict everyday activities;
- treatment for any other long-term condition that restricts everyday activities.

*Specific restrictions* are:

- core activity restrictions; and/or
- schooling or employment restrictions.

*Core activities* are:

- *self care*—bathing or showering, dressing, eating, using the toilet and managing incontinence;
- *mobility*—moving around at home and away from home, getting into or out of a bed or chair; and using public transport;
- *communication*—understanding and being understood by others: strangers, family and friends.

*Core activity restriction* may be:

- *profound*—unable to perform a core activity, or always needing assistance;
- *severe*—sometimes needing assistance to perform a core activity;
- *moderate*—not needing assistance, but having difficulty performing a core activity; and
- *mild*—having no difficulty performing a core activity, but using aids or equipment because of disability.

## 7.15 LIVING ARRANGEMENTS, By Age Group and Disability Status—1998

		Level of restriction associated with disability				
		Profound/ severe core activity(a) restriction	All with disability(b)	No disability	All persons	All persons
	Unit	%	%	%	%	'000
AGED 0 TO 14						
Lives in a private dwelling	%	99.2	99.0	99.6	99.5	3 893.6
Lives in a non-private dwelling						
In cared accommodation	%	0.5	0.2	—	—	0.9
Other non-private accommodation	%	0.3	0.7	0.4	0.5	17.9
Total	%	0.8	1.0	0.4	0.5	18.8
Total	%	100.0	100.0	100.0	100.0	..
Total	'000	144.6	297.0	3 615.3	..	3 912.3
AGED 15 TO 64						
Lives in a private dwelling						
Alone	%	10.3	14.5	6.5	7.9	980.1
With at least another person	%	84.2	82.9	92.3	90.8	11 330.0
Total	%	94.5	97.4	98.9	98.7	12 310.0
Lives in a non-private dwelling						
In cared accommodation	%	3.8	1.0	—	0.2	22.0
Other non-private accommodation	%	1.7	1.6	1.1	1.1	145.0
Total	%	5.5	2.6	1.1	1.3	167.0
Total	%	100.0	100.0	100.0	100.0	..
Total	'000	510.1	2 088.1	10 389.0	..	12 477.0
AGED 65 AND OVER						
Lives in a private dwelling						
Alone	%	20.3	27.4	27.8	27.6	626.3
With at least another person	%	45.5	57.3	69.6	63.0	1 429.8
Total	%	65.8	84.6	97.4	90.5	2 056.1
Lives in a non-private dwelling						
In cared accommodation	%	32.2	13.2	0.5	7.3	166.8
Other non-private accommodation	%	2.0	2.1	2.1	2.1	48.3
Total	%	34.2	15.3	2.6	9.4	215.1
Total	%	100.0	100.0	100.0	100.0	..
Total	'000	481.2	1 225.2	1 046.0	..	2 271.2
Lives in a retirement village(c)	%	8.4	5.0	2.2	3.7	83.5
ALL PERSONS						
Lives in a private dwelling						
Alone	%	13.2	17.7	6.4	8.6	1 606.4
With at least another person	%	69.7	75.5	92.5	89.2	16 653.3
Total	%	82.9	93.2	99.0	97.8	18 259.7
Lives in a non-private dwelling						
In cared accommodation	%	15.4	5.1	—	1.0	189.7
Other non-private accommodation	%	1.7	1.7	1.0	1.1	211.2
Total	%	17.1	6.8	1.0	2.1	400.9
Total	%	100.0	100.0	100.0	100.0	..
Total	'000	1 135.9	3 610.3	15 050.3	..	18 660.6
Lives in a retirement village(c)	%	3.6	1.7	0.2	0.5	88.8

(a) Core activities comprise communication, mobility and self care. (b) Includes those who do not have a specific restriction. (c) Retirement villages can include private and non-private dwellings (including cared accommodation).

Source: Disability, Ageing and Carers: Summary of Findings, Australia (4430.0).

## Aged care programs of the Department of Health and Aged Care

### National Strategy for an Ageing Australia

The Commonwealth Government is developing a National Strategy for an Ageing Australia as its key policy response to the International Year of Older Persons 1999. The National Strategy will develop a broad-ranging framework to identify challenges and possible responses for government, business, the community and individuals to meet the needs of Australians as they age. The four major themes of the National Strategy are: Healthy Ageing; World Class Care; Attitude, Lifestyle and Community Support; and Independence and Self Provision. A Background Paper setting the context for the National Strategy was released in April 1999. Discussion papers on the major themes and specific issues are being released for consultation progressively during the second half of 1999. Following the consultation progress, the National Strategy for an Ageing Australia is expected to be released in early 2000.

### Residential Aged Care Program

The aim of the Residential Aged Care Program is to enhance the quality of life of older Australians through support for the provision of a cohesive framework of high quality and cost effective residential care services for frail older people.

Aged care places are allocated on the population basis of people 70 years and older.

Recurrent funding is available for each person in a residential care setting. The funding depends on the care needs of the resident. Each facility which provides care is required to meet specific care standards and, from 1 January 2001, will need to be accredited by the Aged Care Standards and Accreditation Agency (ACSAA) to continue to receive Commonwealth Government funding. Commonwealth Government expenditure on

residential aged care in 1998–99 is shown in Table 7.16.

### Community care programs

#### Home and Community Care (HACC) Program

The HACC Program is a joint Commonwealth/State cost-shared program which will provide \$865m nationally for the 1999–2000 financial year to service provider organisations. Of the total, the Commonwealth will make available \$526m or 60%, the States and Territories providing the remaining 40%.

The Commonwealth provides funding for HACC, but the day-to-day administration, priority setting and approval of project allocations is the responsibility of the State/Territory Governments.

The aim of the HACC is to provide basic maintenance and support services to enable frail older people, and younger people with disabilities, to remain living in the community and to prevent premature admission to residential care. HACC funded services also assist the carers of these groups. The types of HACC funded services available include home maintenance and modification, as well as home help, food services, personal care, community nursing, transport and respite care.

#### Community Care Packages Program

Community Care Packages are funded by the Commonwealth to provide personal care services for people in the community with complex needs who may otherwise require entry to long-term residential care.

Service providers use a case management approach to develop and monitor care delivery to the older person. One of the great benefits of the Community Care Packages Program is its flexibility in service delivery to meet individual needs. This flexibility sees people given assistance with eating meals, using the telephone, personal and domestic care, and transport.

**7.16 COMMONWEALTH EXPENDITURE ON RESIDENTIAL AGED CARE—1998–99**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Expenditure 1998–99(a)									
Residential Care (recurrent)	1 247.3	812.1	556.3	313.0	268.1	98.0	10.3	31.5	<b>3 336.6</b>
Residential Care (capital)	13.8	8.8	6.1	3.1	3.4	0.7	5.7	1.8	<b>43.4</b>

(a) Includes expenditure by Department of Health and Aged Care, and Department of Veterans' Affairs.

Source: Department of Health and Aged Care.

At June 1999 there were some 13,700 packages in operation under the program. Total expenditure for 1998–99 was \$121.5m.

The Staying at Home Initiative announced by the Prime Minister in April 1998 has provided \$95.5m over the next four years to increase the number of community care package places available across Australia. The number of care packages available will double by 2002–03, and progress will be accelerated towards the target ratio of 10 places per 1,000 people aged 70 years and over. Some 4,300 additional places have been offered for 1999–2000.

### **Aged Care Assessment Program (ACAP)**

ACAP is a joint Commonwealth/State program introduced in 1986. The aim of ACAP is to ensure that frail aged people have access to available residential care and community care services appropriate to their needs, through the operation of multidisciplinary Aged Care Assessment Teams (ACATs).

A network of 123 ACATs operates throughout Australia. In addition, each State has an evaluation unit which monitors and evaluates the performance of the program in that State. The Commonwealth funds State health authorities which manage the program on a day-to-day basis. The State health authorities also contribute additional resources to the operation of ACATs and evaluation units. The Commonwealth Government has contributed \$36m to this program in 1999–2000.

ACATs operate on a regional basis, and their structure is influenced by the requirements of the community in which they function. The Teams' responsibilities include holistic assessment of clients, approval of clients to receive residential aged care or Community Care Packages, appropriate referral to other community services, and further assistance for older people through advice about aged care services in general. ACATs are also well positioned to act as an interface between aged care services and the health care system.

### **Assistance with Care and Housing for the Aged (ACHA) Program**

The ACHA Program assists frail, low-income older people who are renting, are in insecure/inappropriate housing or are homeless, to remain in the community by accessing suitable housing linked to community care.

The Commonwealth contributes recurrent funds to organisations that provide support through paid workers and/or volunteers, assisting clients to access and be maintained in secure and affordable housing. The primary role of program workers is to link clients to appropriate mainstream housing and/or care services.

In 1999–2000 the program will fund 46 projects nationally from an allocation of \$2.5m. The funding for each project varies according to identified community need, the number of staff employed by individual services and the tenure of employment (i.e. full-time or part-time). Most projects are located in inner city areas where there is a concentration of frail elderly people living in insecure accommodation.

### **Hearing Services Program**

The role of the Hearing Services Program is to purchase services for people with a hearing impairment. The administration of the Hearing Services Program is the responsibility of the Office of Hearing Services (OHS), a branch within the Department of Health and Aged Care.

OHS provides access to hearing services for eligible adults through the Hearing Services Voucher System. Eligible adults include holders of Pensioner Concession Cards, holders of Repatriation Health Cards issued for conditions that include hearing loss, Commonwealth Rehabilitation clients and serving Defence personnel. OHS purchases hearing services from accredited public and private sector providers.

More than 100 accredited providers are contracted by the OHS to provide services under the Hearing Services Voucher System. Services are provided at more than 300 permanent and 1,000 visiting sites throughout Australia by qualified practitioners (audiologists and audiometrists).

In addition, OHS funds Australian Hearing Services to provide specialised hearing services for children and young adults up to the age of 21 years and their families. OHS also funds Australian Hearing Services to ensure access to appropriate hearing services for eligible adults with special needs, including those who live in rural and remote locations, who are Aboriginal or Torres Strait Islander people, or who have complex hearing needs. Funding is also provided to Australian Hearing Services to undertake research to increase understanding of issues related to hearing loss, hearing rehabilitation and the harmful effects of noise.



## Support for older people

Growth in the number of older Australians, along with an increasing prevalence of disability, has seen many older people turn to support services for assistance. According to the ABS Survey of Disability, Ageing and Carers, 12% of Australians (2.3 million) were aged 65 years and over in 1998, and 1.2 million of these had a disability. The survey also indicated that 888,000 older people required assistance with common daily activities, because of disability or age.

A major aim of aged care policy is to meet the preference of older people to remain in their homes by providing assistance with activities such as personal care, health care, and household tasks. Government agencies may provide services directly or purchase them from other formal providers. The activities most commonly supported by formal providers were property maintenance, health care and housework. Table 7.17 illustrates the range of activities supported by formal providers and the number of older Australians who received assistance with these activities.

While a large number of people received help from formal providers, more older people received help from informal providers, such as family members or friends, for most activities. As well as being the most likely source of assistance with personal tasks (self care, communication and mobility), friends and relatives also provided help with a full range of other activities. Table 7.18 illustrates the range of activities supported by informal providers, the relationships of providers to older persons receiving assistance, and the number receiving assistance.

Of the 853,000 people who received assistance with one or more activities, 59% had some of their needs met by formal providers and 83% were assisted by family members or friends. This illustrates the complementary roles that different providers play in attempting to meet the needs of older people in the community.

The majority of people who required help received some support, but not always as much as they would have liked. The activity for which there was the greatest unmet need was transport.

**7.17 OLDER PERSONS(a), Formal Assistance by Activity—1998**

	Government	Private non-profit	Private for profit	All receiving formal assistance(b)	All needing assistance
	'000	'000	'000	'000	'000
Activities					
Self care	23.2	7.5	*6.3	35.3	155.0
Mobility	32.7	11.3	9.4	51.1	275.0
Communication	n.p.	—	—	n.p.	28.3
Health care	105.9	14.4	132.2	238.6	376.0
Transport	38.5	18.5	11.9	64.9	453.9
Paperwork	*4.4	**2.1	*4.6	11.0	144.3
Housework	108.1	13.6	59.8	177.5	403.9
Property maintenance	42.5	24.5	234.5	284.9	626.1
Meal preparation	20.0	12.3	*7.6	39.2	142.2
One or more activities(c)	237.5	74.6	350.1	506.7	887.9
All receiving any assistance(d)	..	..	..	853.3	..

(a) Aged 65 and over, living in households. (b) Total may be less than the sum of the components as persons may receive assistance from more than one provider. (c) Total may be less than the sum of the components as persons may need or receive assistance with more than one activity. (d) Persons receiving formal and/or informal assistance.

Source: *Disability, Ageing and Carers: Summary of Findings, Australia (4430.0)*.

**7.18 OLDER PERSONS(a), Informal Assistance by Activity—1998**

	Relationship of informal provider to older person receiving assistance						All receiving informal assistance (b)	All needing assistance
	Partner		Child		Other relative or friend			
	Female	Male	Daughter	Son	Female	Male		
	'000	'000	'000	'000	'000	'000		
Activities								
Self care	46.3	33.9	39.4	*7.5	9.3	*3.5	127.4	155.0
Mobility	50.9	47.5	84.6	39.2	55.9	30.3	246.4	275.0
Communication	9.5	*3.1	11.3	**1.8	*5.0	**2.6	25.2	28.3
Health care	65.7	29.7	50.0	16.8	18.4	*3.5	172.6	376.0
Transport	40.8	63.2	132.8	62.1	85.4	58.8	372.8	453.9
Paperwork	36.5	19.4	49.2	17.8	16.7	*5.5	133.7	144.3
Housework	59.5	85.9	90.0	37.8	35.1	10.7	281.0	403.9
Property maintenance	66.8	91.8	77.6	116.7	35.9	114.8	422.4	626.1
Meal preparation	33.6	25.5	38.3	10.7	13.1	*3.1	115.7	142.2
One or more activities(c)	143.2	151.7	222.9	170.6	155.7	171.7	710.9	887.9
All receiving any assistance(d)	..	..	..	..	..	..	853.3	..

(a) Aged 65 and over, living in households. (b) Total may be less than the sum of the components as persons may receive assistance from more than one provider. (c) Total may be less than the sum of the components as persons may need or receive assistance with more than one activity. (d) Persons receiving informal and/or formal assistance.

Source: *Disability, Ageing and Carers: Summary of Findings, Australia (4430.0)*.

## Services provided by the Department of Veterans' Affairs

Services provided to veterans are determined by the Repatriation Commission. The Department of Veterans' Affairs provides the administrative machinery through which the Commission operates. The Commission, comprising three full-time members, has functions which include:

- granting pensions, allowances and other benefits in accordance with the provisions of Repatriation legislation;
- arranging the provision of treatment and other services for eligible persons;
- advising the Minister, and providing the Minister with information on matters relating to Repatriation legislation;
- performing other functions conferred on the Commission by the Act or other Acts; and
- administering the Acts subject to the control of the Minister.

Repatriation benefits are provided under the *Veterans' Entitlements Act 1986* in respect of service with the Australian Defence Forces in

World War I, World War II, the Korean and Malayan operations, the Australian contingent of the British Commonwealth Far East Strategic reserve, in Viet Nam and South East Asia, and for service in the Regular Defence Forces on or after 7 December 1972. Since 6 April 1994, however, peacetime service is covered through the Military Compensation Scheme under the *Safety Rehabilitation and Compensation Act 1988*.

Certain civilians may also be eligible for benefits, as are Australian members of certain designated peacekeeping, observing and monitoring forces who had peacekeeping service overseas and, from July 1994, Australian mariners of World War II. Under the *Papua New Guinea (Members of the Forces Benefits) Act 1957*, indigenous inhabitants of Papua New Guinea who served in the Australian forces in World War II, and members of the Royal Papuan Constabulary and New Guinea Police Force who served in that conflict, are eligible for compensation-type benefits. Members of other Commonwealth countries' forces and other allied veterans are not eligible for compensation-type benefits in respect of their service, unless they were domiciled in Australia immediately before their enlistment. They may, however, qualify for income support payments such as the service pension.



Qualification for receiving subsidised housing loans, granted under the Defence Service Homes Act, generally depends on service with the Australian Defence Forces in World War I, World War II, or specified service in Korea, Malaya, South East Asia, Namibia, or the Middle East in respect of the Kuwaiti crisis, and for service in the Regular Defence forces on or after 7 December 1972, provided the person's first service in the Forces was before 15 May 1985. Certain civilians may also be eligible.

More detailed information on repatriation allowances, benefits and services is available from the Department.

### Compensation Program

The principal objective of the Compensation Program is to compensate veterans and their dependants for the effects of war or defence service. Compensation is administered under four sub-programs—the Compensation Sub-Program, the Income Support Sub-Program, the Housing Sub-Program and the Veterans' Review Board.

#### Compensation Sub-Program

The main benefits provided under this sub-program are the Disability Pension and the War/Defence Widow's/Widower's Pension and ancillary benefits. Table 7.19 shows the number of pensions at 30 June 1999.

The Disability Pension is a compensatory payment for incapacity due to eligible war, defence or peacekeeping service. Table 7.20 shows the number of disability pensioners at 30 June 1999. General rate disability pensions range from 10% up to and including 100%, depending on the degree of war-caused or

defence-caused incapacity. Higher rates of pension (intermediate rate and special rate) are payable if:

- there is at least 70% incapacity due to war, defence-caused injury or disease; and
- the veteran is totally and permanently incapacitated from accepted disabilities alone; and
- the disabilities render him/her incapable of undertaking remunerative work for periods aggregating to more than 20 hours per week for the intermediate rate, or eight hours for the special rate.

An Extreme Disablement Adjustment, equal to 150% of the general rate, is payable to severely disabled veterans who are 65 years of age or over.

The War/Defence Widow's/Widower's Pension is payable to the widow or widower of a veteran:

- whose death has been accepted as war-caused or defence-caused;
- who at the time of his or her death was receiving or entitled to receive a special rate Disability Pension or the Extreme Disablement Adjustment; or
- who at the time of his/her death was receiving a pension which had been increased due to certain amputations, or amputations and blindness.

From 1 January 1993, the War Widow's/Widower's Pension also became available to the widows/widowers of former prisoners of war.

Orphan's Pension is payable to the children of these veterans.

**7.19 DISABILITY AND WAR WIDOWS' PENSIONS—30 June**

	1996	1997	1998	1999
Recipient	no.	no.	no.	no.
Incapacitated veterans	159 178	160 145	161 829	162 810
Wives and widows	74 725	69 858	65 442	60 864
Children	5 176	4 247	3 752	3 337
War widows and widowers	93 456	97 522	100 746	104 553
Orphans	470	459	420	414
Other dependants	547	512	481	285
<b>Total</b>	<b>333 552</b>	<b>334 740</b>	<b>332 670</b>	<b>332 263</b>

Source: Department of Veterans' Affairs.

**7.20 DISABILITY PENSIONERS—30 June 1999**

	World War I	World War II(a)	Korea/Malaya	FESR(b)	Special overseas service	Peacetime forces	Miscellaneous(c)	Total
	no.	no.	no.	no.	no.	no.	no.	no.
General rate—from 10% to 100%	24	89 488	3 713	780	11 027	25 895	556	<b>131 483</b>
Intermediate rate	0	531	30	5	208	207	1	<b>982</b>
Special rate (TPI or equivalent)	1	10 114	875	211	7 233	3 603	20	<b>22 057</b>
Extreme Disablement Adjustment	0	7 785	260	22	46	94	81	<b>8 288</b>
<b>Total</b>	<b>25</b>	<b>107 918</b>	<b>4 878</b>	<b>1 018</b>	<b>18 514</b>	<b>29 799</b>	<b>658</b>	<b>162 810</b>

(a) Includes interim forces. (b) Far East Strategic Reserve. (c) Includes service in the Gulf War.

Source: Department of Veterans' Affairs.

**7.21 DISABILITY AND WAR WIDOWS' PENSIONS**

Number of disability pensions in force, 30 June					
Year	Incapacitated veterans no.	Dependants of incapacitated veterans no.	Dependants of deceased veterans no.	Total no.	Annual expenditure(a) to 30 June \$'000
1992	157 790	102 953	81 125	341 868	1 396 192
1993	156 923	96 948	83 642	337 513	1 445 308
1994	156 565	91 722	86 224	334 511	1 508 446
1995	157 298	85 837	90 039	333 174	1 570 136
1996	159 178	79 901	94 473	333 552	1 720 239
1997	160 145	74 405	98 493	333 043	1 819 338
1998	161 829	69 484	101 647	332 960	1 888 416
1999	162 810	64 486	104 967	332 263	2 067 783

(a) Includes associated allowances.

Source: Department of Veterans' Affairs.

**7.22 VETERANS' CHILDREN EDUCATION SCHEME, Cost of Education Beneficiaries**

Year	NSW(a)	Vic.	Qld	SA(b)	WA	Tas.	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1991–92	1 475.8	1 068.2	1 201.6	542.5	289.6	358.8	<b>4 936.5</b>
1992–93	1 612.4	1 092.7	1 198.1	310.1	644.8	413.6	<b>5 271.7</b>
1993–94	1 749.3	1 170.2	1 303.8	348.5	771.6	463.5	<b>5 806.9</b>
1994–95	1 905.7	1 163.9	1 601.4	371.7	791.8	491.8	<b>6 326.3</b>
1995–96	2 401.2	1 399.4	1 877.8	432.8	925.4	553.1	<b>7 589.7</b>
1996–97	2 913.7	1 694.8	2 430.4	522.3	1 135.8	620.7	<b>9 317.7</b>
1997–98	3 535.7	2 071.9	3 024.4	685.2	1 442.3	718.8	<b>11 478.3</b>
1998–99	3 969.5	2 420.7	3 609.0	812.4	1 713.6	789.3	<b>13 314.5</b>

(a) Includes the Australian Capital Territory. (b) Includes the Northern Territory.

Source: Department of Veterans' Affairs.

Table 7.21 shows the number of disability pensions at 30 June 1999 and for the seven preceding years.

The Veteran's Children Education scheme (see tables 7.22 and 7.23) provides financial help, guidance and counselling to certain students up

to 25 years of age. To be eligible a student must be the child of a veteran, an Australian mariner, or a member of the Forces, who is (or has been) in receipt of a Special Rate Disability Pension. Children of former prisoners of war, of veterans, or of Australian mariners whose death has been accepted as war-caused, are also eligible.

**7.23 VETERANS' CHILDREN EDUCATION SCHEME, Number Receiving Benefits—At 30 June 1999**

	NSW(a)	Vic.	Qld	SA(b)	WA	Tas.	Aust.
Type of training	no.	no.	no.	no.	no.	no.	no.
At school							
Primary(c)	302	166	384	78	172	75	<b>1 177</b>
Secondary	669	366	549	136	272	150	<b>2 142</b>
Total	971	532	933	214	444	225	<b>3 319</b>
Tertiary professional	248	224	230	65	187	39	<b>993</b>
Technical	77	0	79	24	0	7	<b>187</b>
Total	1 296	756	1 242	303	631	271	<b>4 499</b>

(a) Includes the Australian Capital Territory. (b) Includes the Northern Territory. (c) Not in receipt of an education allowance.

Source: Department of Veterans' Affairs.

**Income Support Sub-Program**

The main form of income support paid under this sub-program is the Service Pension. This is an income and assets tested pension similar to the Age Pension and Disability Support Pension paid by Centrelink. The pension is payable to veterans with qualifying service at age 60. Prior to 1 July 1995, the pension was payable to female veterans with qualifying service at age 55. The Government introduced changes to the minimum age at which a female veteran can be granted Service Pension (Age). The minimum age will be lifted from 55 to 60 years in six-monthly increments every two years over the period 1995–2013. This means that the qualifying age for Service Pension (Age) at 1 July 1999 was 56 years. The qualifying age on 1 July 2013 will be the same as for male veterans, that is, 60 years. Veterans with qualifying service may be paid the pension at any age if they are permanently incapacitated for work. Qualifying service generally means service in an area and at a time when danger from hostile enemy forces was incurred by the veteran.

Veterans of other Commonwealth and allied countries may also qualify for the Service Pension for service in wars or war-like conflicts in which Australia has engaged. Veterans of Commonwealth forces must have served outside the country of enlistment or be entitled to the award of a campaign medal for service within that

country. Allied veterans must have service in formally raised forces. The veteran must be an Australian resident with at least ten years residency. Service Pension is also available to Australian, other Commonwealth and allied mariners of World War II.

From 1 April 1993, all service pensioners became eligible for 'fringe benefits', provided by the Commonwealth Government, which include medical and hospital treatment, pharmaceutical benefits and the payment of a telephone allowance.

A number of supplementary benefits are also available under the sub-program. These include:

- rent assistance;
- additional pension in respect of dependent children;
- remote area allowance;
- guardian allowance;
- bereavement payment; and
- pharmaceutical allowance.

Table 7.24 shows the total number of pensions as at 30 June 1999, and Table 7.25 shows the number of pensions and annual expenditure for the years 1992–99.

**7.24 SERVICE PENSIONS, Number by Category—At 30 June 1999**

	World War I	World War II	Korea, Malaya & FESR(a)	Special overseas service	British Commonwealth	Allied Forces	Other	Total
	no.	no.	no.	no.	no.	no.	no.	no.
Veterans								
Old age/permanently incapacitated	27	120 871	8 397	13 397	22 360	5 434	2 000	<b>172 486</b>
Tuberculosis(b)	0	160	5	1	2	0	0	<b>168</b>
Total	27	121 031	8 402	13 398	22 362	5 434	2 000	<b>172 654</b>
Wives and widows	81	94 041	5 911	9 618	20 015	4 800	1 438	<b>135 904</b>
Total	108	215 072	14 313	23 016	42 377	10 234	3 438	<b>308 558</b>

(a) Far East Strategic Reserve. (b) Eligibility on these grounds ceased on 2 November 1978.

Source: Department of Veterans' Affairs.

**7.25 SERVICE PENSIONS, Number and Expenditure**

Year	Pensions in force, 30 June			Annual expenditure(a)
	Veterans	Wives and widows	Total	
	no.	no.	no.	\$'000
1992	215 010	156 603	371 613	2 377 619
1993	210 406	152 742	363 148	2 389 886
1994	204 793	148 184	352 977	2 382 307
1995	198 793	148 974	347 713	2 426 579
1996	192 342	145 481	337 823	2 609 460
1997	186 228	142 520	328 748	2 644 118
1998	179 673	138 906	318 579	2 602 122
1999	172 654	135 904	308 558	2 680 409

(a) Includes associated allowances.

Source: Department of Veteran's Affairs.

**Housing Sub-Program (Defence Service Homes Scheme)**

The Defence Service Homes (DSH) Scheme provides financial benefits to recognise the contribution of certain men and women who have served Australia in either peacetime or wartime. The benefits include housing loan interest subsidies, comprehensive home owners' insurance cover at competitive rates, and home contents insurance (see table 7.26).

The Scheme was established in 1918 as the War Service Homes Scheme. In 1972, its name was changed to the Defence Service Homes Scheme to recognise the extension of eligibility to those with qualifying peacetime service.

The Commonwealth Government sold the DSH mortgage portfolio to Westpac Banking Corporation, which became the Scheme's lender on 19 December 1988. Under the Agreement between the Commonwealth and Westpac, the Commonwealth subsidises Westpac for the low-interest loans provided. The subsidy is paid

directly to Westpac and represents the difference between the concessional interest rate paid by the borrower and the agreed benchmark interest rate.

Since 1918, the Defence Service Homes Act has made provision for DSH insurance. Building insurance is available to all eligible persons, irrespective of whether they have or have had a DSH loan. This benefit is also available to those who obtain assistance under the Australian Defence Force Home Loans Assistance Scheme. DSH contents insurance, a comprehensive insurance package underwritten by Mercantile Mutual Insurance (Australia) Ltd, is available to veterans and the service community.

The maximum loan available under the DSH Scheme is \$25,000 repayable over 25 years. The interest rate on new loans is capped at 6.85% for the term of the loan. Loans can be used to buy a home or strata unit, build or extend a home, buy a right of residence in a retirement village, refinance an existing mortgage, repair or modify an existing home, or obtain granny flat accommodation on another person's property.

**7.26 DEFENCE SERVICE HOMES SCHEME**

	Unit	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Subsidised loans								
Loans granted	no.	9 158	7 639	7 171	6 861	6 518	6 380	5 477
Interest subsidy	\$m	54.3	37.5	45.1	53.0	29.2	12.2	17.2
Loan accounts at 30 June	no.	113 741	107 124	101 887	96 518	91 029	80 802	73 530
Building insurance								
Homes insured at 30 June	no.	157 510	147 853	140 508	137 012	133 711	126 799	123 068

Source: Department of Veterans' Affairs.

## Health Program

Health care treatment is provided to people whose disabilities have been accepted by DVA as service-related, and for pulmonary tuberculosis, post traumatic stress disorder and malignant neoplasia whether they are service-related or not. In addition, and subject to certain conditions, health care treatment in Australia is provided for all conditions to certain veterans of Australia's Defence Forces including ex-prisoners of war; veterans and mariners of World War II aged 70 years or over who have qualifying service from that conflict; those receiving a disability pension at or above the maximum (100%) general rate; World War II veterans and mariners receiving both Service Pension at any rate and Disability Pension at 50% rate or higher; veterans, mariners or nurses who served in World War I; certain service pensioners; and returned ex-servicewomen of World War II. War widow/ers and certain other dependants of deceased veterans are also entitled to treatment for all conditions.

Younger veterans, from post-World War II conflicts, have identified needs which are additional to those of their older counterparts. These needs have been addressed by recent initiatives which include integrated out-patient, in-patient and support services for the treatment and rehabilitation of veterans with post-traumatic stress disorder (PTSD). A national centre for war-related PTSD is based in Melbourne, at the former Repatriation Hospital, now the Austin and Repatriation Medical Centre. Intensive in-patient treatment programs are available in each State. Community based psychological services are provided by the Viet Nam Veterans Counselling Service and individual providers.

Vocational rehabilitation services are available to support those at risk of losing employment, and those who wish to return to the workplace. Rehabilitation Allowance may be available to

people whose pension entitlement is affected—the intention is that no financial loss should occur for individuals taking up paid employment. Safety-net arrangements enable return to former pension status in the event that employment cannot be sustained (this applies to pensioners receiving above general rate levels of Disability Pension or Service Pension through invalidity).

With the transfer of the Rehabilitation General Hospitals to the States, or their sale to the private sector, all acute hospital care is now provided through the Repatriation Private Patient Scheme. This means that entitled beneficiaries can obtain treatment at a public hospital as a Repatriation private patient, in shared accommodation with a doctor of their choice. According to medical need, if treatment cannot be provided within a reasonable time, the Department may approve admission to a private hospital. The former Repatriation hospitals will remain available for treatment if beneficiaries choose to go there.

Under arrangements with State Governments, entitled persons requiring custodial psychiatric care for a service-related disability are treated at departmental expense in State psychiatric hospitals.

Entitled persons may also be provided with dental treatment through the Local Dental Officer (LDO) Scheme, which comprised 6,825 LDOs as at 1 June 1999.

Optometrical services, including the provision of spectacles, the services of allied health professionals, as well as a comprehensive range of aids, appliances and dressings, may be provided to entitled persons.

In addition, entitled persons may be provided with pharmaceuticals through the Repatriation Pharmaceutical Benefits Scheme.

### Vietnam Veterans' Counselling Service (VVCS)

The VVCS provides counselling to veterans of all conflicts and their families, as well as working with the ex-service community to promote understanding and acceptance of veterans' problems.

The VVCS is staffed by psychologists and social workers who have specialised knowledge about military service, particularly in Viet Nam, and its impact on veterans and their families, especially the impact of post-traumatic stress.

Access to counselling services for rural veterans and their families was greatly improved with the establishment of the Country Outreach Program in 1988, followed soon after by a toll-free 1800 telephone link to all VVCS centres. Recent service enhancement initiatives include the creation of group programs aimed at promoting better health for veterans. Table 7.27 shows use of the VVCS.

### The Office of Australian War Graves (OAWG)

OAWG manages the War Graves Program and maintains some 24,000 graves and memorials of Commonwealth war dead in 76 war cemeteries, plots and civil cemeteries in Australia, Papua New Guinea, Guadalcanal (Solomon Islands) and Norfolk Island. OAWG also makes an annual contribution to the Commonwealth War Graves Commission to assist that organisation to maintain war cemeteries elsewhere in the world.

OAWG also represents the Australian Government's interest in the maintenance of graves of Australian service personnel and war memorials that commemorate those Australians who died in other conflicts, in overseas countries. These include the United Nations Memorial Cemetery, Pusan, Korea, and the British Commonwealth Forces Cemetery, Yokohama, Japan, and in Malaysia.

Another of OAWG's major tasks is the official commemoration within Australia of those Australian men and women whose deaths in post-war years is accepted as due to their war service. In recent years OAWG has processed some 8,500 commemorations annually and it is anticipated this trend will continue during 1999–2000. The Office has some 215,000 memorials under perpetual maintenance.

OAWG constructs major memorials at significant locations where Australians have suffered and died. In recent years memorials have been dedicated at Hellfire Pass, Thailand, Le Hamel and Fromelles in France and at Sandakan, North Borneo, Malaysia. In 1999–2000 the Anzac Commemorative Site will be constructed at Gallipoli, for dedication on Anzac Day 2000.

The Office also cares for war graves and cemeteries in Australia which contain the graves of foreign service personnel and civilian internees who died during the two World Wars. It also maintains the graves of, and memorials to, former Prime Ministers of Australia and Governors-General, on behalf of the Department of the Environment and Heritage.

**7.27 VIETNAM VETERANS' COUNSELLING SERVICE**

	1994–95	1995–96	1996–97	1997–98(a)	1998–99(a)
Type of counselling	no.	no.	no.	no.	no.
Face-to-face consultation	33 996	33 411	(a)30 000	30 000	27 000
Group session consultation	356	724	784	500	500
Country outreach consultation	20 398	20 723	21 523	27 000	26 000

(a) Estimates.

Source: Department of Veterans' Affairs.

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Commonwealth Department of Health and Aged Care, <http://www.health.gov.au/>

Commonwealth Department of Veterans' Affairs, <http://www.dva.gov.au/>



# Income support payments in Australia

*(This article has been contributed by Kim Bond and Peter Whiteford of the Commonwealth Department of Family and Community Services.)*

## Introduction

Over the last 30 years there has been a significant increase in the proportion of the Australian population receiving government income support. The provision of income support is now one of the most important functions of the Commonwealth Government. These government benefits affect the living standards of a high proportion of the Australian population.

This article describes broad trends in levels of receipt of government benefits, and details the patterns of receipt of benefits in 1998.

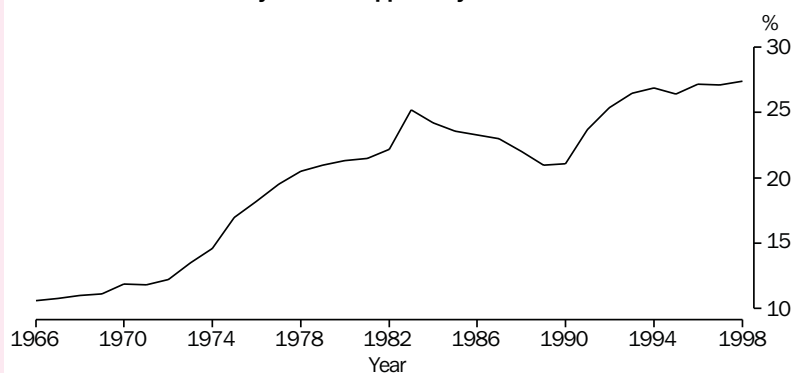
There is a wide variety of benefit payments available from the Commonwealth Government. Income support payments include pensions or allowances paid on behalf of the Department of Family and Community Services through Centrelink, or by the Department of Veterans' Affairs (DVA). In addition, there is also a range of supplementary payments, e.g. to assist families with children.

## Longer term trends

Graph S3.1 shows that between 1966 and 1998 the proportion of the adult population (aged 15 years and over) who were social security income support recipients increased from under 11% to 27%. Over this period the total number of income support recipients increased from around 900,000 to nearly 4.8 million. The graph also shows that the proportion of the population receiving cash benefits has fluctuated over time, rising over the second half of the 1970s and the early 1980s, then falling between 1983 and 1990. The proportion then increased significantly, before flattening from 1994. The factors influencing these broad trends have varied across programs, with different patterns for people of workforce age and those of retirement age, in particular.

Table S3.2 provides details of trends in the number of recipients of various cash payments from the former Department of Social Security and the Department of Veterans' Affairs for selected years from 1965 to 1998.

**S3.1 POPULATION AGED 15 AND OVER, Proportion Receiving Social Security Income Support Payments—1966 to 1998**





**S3.2 RECIPIENTS OF CASH PAYMENTS—At 30 June**

	1965	1970	1975	1980	1985	1990	1995	1997	1998
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Age Pension	628.1	779.0	1 097.2	1 321.9	1 331.8	1 340.5	1 578.7	1 680.2	1 682.6
Age Pension—Wives	3.5	6.6	21.9	30.8	22.9	23.8	39.6	36.6	36.2
Disability Support Pension(a)	107.5	134.5	171.5	236.8	271.5	328.2	464.4	527.5	553.3
Disability Support Pension—Wives	12.8	16.2	28.9	60.2	74.8	91.9	121.8	91.3	79.9
Carer Pension	..	..	..	..	2.7	8.8	20.1	29.6	34.0
Parenting Payment—single(b)	29.7	44.1	102.5	161.6	246.3	248.9	324.9	358.9	372.3
Parenting Payment—partnered(c)	..	..	..	..	..	..	..	239.3	236.6
Class B Widows(d)	35.7	42.8	54.3	75.0	81.6	79.0	55.0	18.9	13.6
Widows Allowance	..	..	..	..	..	..	8.7	17.5	24.7
Unemployment Allowances(e)	12.7	13.0	160.7	311.2	561.4	419.8	795.5	801.8	790.3
Unemployment Allowances—Partners(f)	3.5	4.4	33.0	66.3	147.2	126.0	..	..	..
Mature Age Allowance	..	..	..	..	..	..	39.0	53.4	50.7
Mature Age Allowance—Partners	..	..	..	..	..	..	15.1	7.3	4.4
Sickness Allowance	10.2	8.8	25.5	36.8	62.0	79.2	46.1	15.8	16.3
Sickness Allowance—Partners(f)	4.2	3.9	11.2	13.1	20.4	26.3	..	..	..
Special Benefit	2.4	3.8	5.6	20.9	18.9	27.9	20.5	14.6	10.2
Special Benefit—Partners(f)	0.9	1.3	1.7	3.4	4.7	8.2	..	..	..
Partner Allowance	..	..	..	..	..	..	216.7	72.1	77.7
<i>Total Social Security Pensioners and Beneficiaries</i>	<i>851.1</i>	<i>1 058.5</i>	<i>1 714.0</i>	<i>2 338.0</i>	<i>2 846.3</i>	<i>2 808.4</i>	<i>3 746.2</i>	<i>3 964.8</i>	<i>3 982.9</i>
Student Assistance	18.5	35.2	67.2	81.9	93.7	339.1	433.8	404.7	384.6
DVA Service pensions(g)	65.2	74.4	121.6	240.0	392.5	386.3	347.7	389.5	387.6
<b>Total Cash Benefit Recipients</b>	<b>934.8</b>	<b>1 168.1</b>	<b>1 902.8</b>	<b>2 659.9</b>	<b>3 332.5</b>	<b>3 533.8</b>	<b>4 527.7</b>	<b>4 759.0</b>	<b>4 755.1</b>
Basic Family Payment (Children)	3 710.6	4 079.4	4 283.3	4 233.9	4 323.5	3 672.5	3 486.3	3 491.2	3 418.9
Income Support Payment(h)	..	..	372.9	524.8	779.2	710.8	983.4	1 196.2	1 220.4
Workforce Payment	..	..	..	..	74.9	437.5	687.9	625.0	579.0
<i>Total recipients of other payments</i>	<i>3</i>	<i>710.6</i>	<i>4 079.4</i>	<i>4 656.2</i>	<i>4 758.7</i>	<i>5 177.6</i>	<i>4 820.8</i>	<i>5 157.6</i>	<i>5 312.4</i>
								<i>5 218.3</i>	

(a) Includes Sheltered Employment and Rehabilitation Allowees in relevant years. (b) Includes Class A Widows' Pension, Supporting Mothers'/Parents' Benefit and Sole Parent Pension. (c) Originally Parenting Allowance—excludes those receiving only Basic Parenting Payment. (d) Includes Class C Widows' Pension, Widowed Person's and Bereavement Allowances. (e) Includes Youth Training Allowance. (f) Partners of Unemployment, Sickness or Special Benefits recipients received Partner Allowance from September 1994 and Parenting Allowance from June 1995. (g) Service Pensioners only. (h) First reference period is 1976.

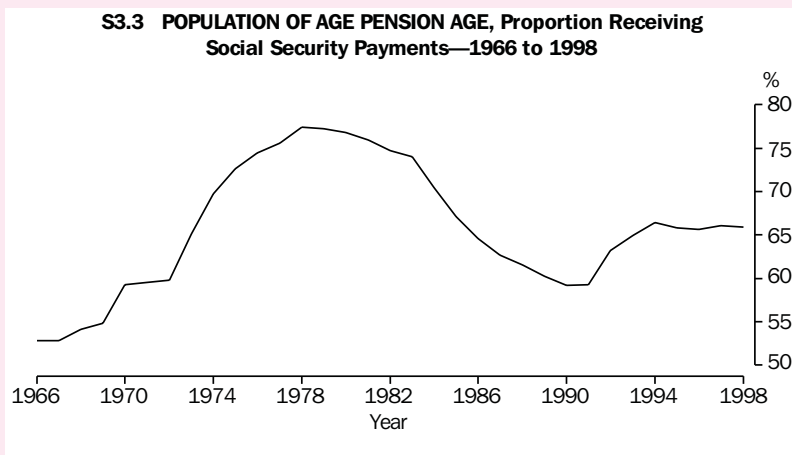
Source: Department of Social Security: Ten Yearly Statistical Summary; Annual Report; and DSS Customers: A Statistical Overview, various years.

## Age pension coverage

Trends in receipt of payments are the consequence of differing levels and trends for different age groups. The aged<sup>1</sup> as a proportion of the total population have been growing steadily since the 1970s, from 10% in 1971 to 14% in 1998.

Graph S3.3 shows recipients of social security income support as a proportion of the pension age population from 1966 to 1998. Coverage of age pensions increased significantly in the 1970 to

1975 period, due to the phased abolition of the means test. Reductions in coverage were significant in the period 1980 to 1990, associated mainly with the reimposition of the income test on pensioners aged 70 years and over and the reintroduction of the assets test. Changes in the number of DVA pensioners have also affected numbers receiving the age pension. This is essentially a cohort effect, as the group of World War II veterans moved into retirement.



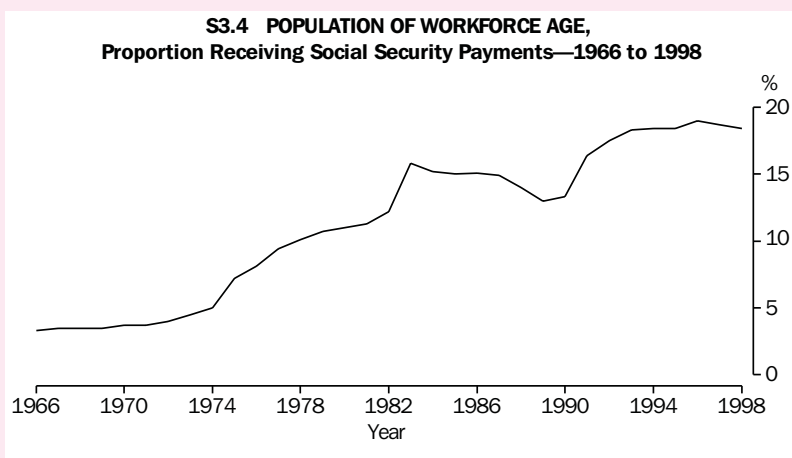
### Workforce age recipients—1966 to 1998

Graph S3.4 shows receipt of pensions and benefits among persons of workforce age<sup>2</sup> from 1966 to 1998. The proportion of the population of workforce age receiving social security income support remained below 5% until 1974. In this period, the majority of male recipients were invalid pensioners, while women received invalid, wife or widow pensions.

While reliance on these payments grew after 1975, the growth in the numbers receiving

unemployment benefits from 1975 onwards dramatically altered the profile of income support<sup>3</sup> for people of workforce age. The number of recipients also increased as the result of the introduction of new payments for sole mothers, the number of which initially grew rapidly.

The proportion of the population of workforce age receiving payments had grown to nearly 16% by 1983, and then fell below 14% in 1989, before stabilising at around 18% from 1993 onwards.



# Numbers receiving payment in 1998

At June 1998 there were 4,756,000 recipients of income support payments, comprising:

- 3,983,000 (about 84%) receiving social security pensions and allowances;
- 388,000 (8%) receiving service pensions; and
- 385,000 (8%) receiving student assistance.

This represents 32% of the population aged 15 years and over.

The aged comprise 2,114,000 (over 44% of the total recipients of income support payments) who are usually receiving an age pension or service pension. They represent 82% of the aged population.

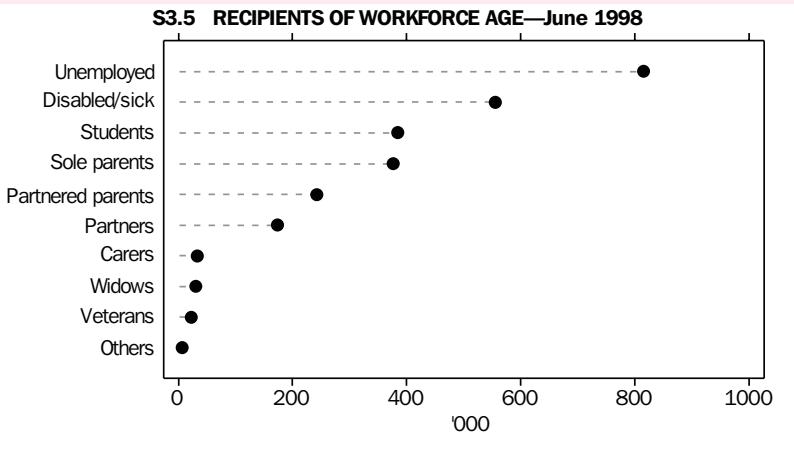
In June 1998 there were 2,642,000 people of workforce age receiving payments. Of these:

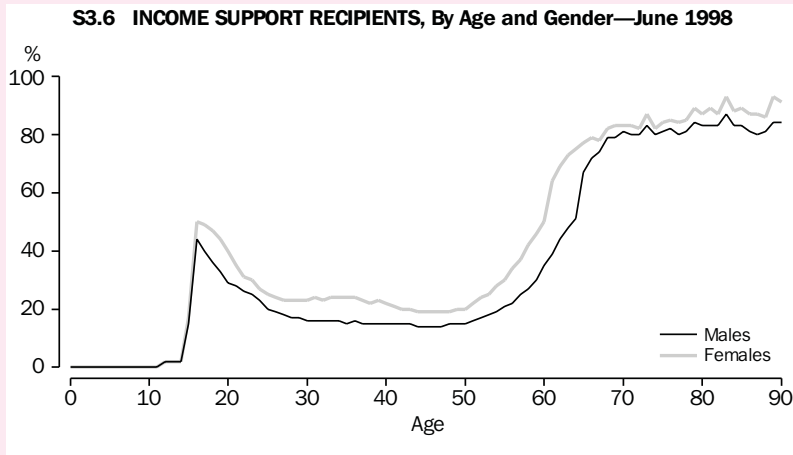
- the unemployed comprised 31% (including the temporarily incapacitated and people receiving mature age allowances);
- those receiving disability support pension (553,300) or sickness allowance (16,300) comprised 21%;
- students comprised 15%;

- sole parents comprised 14% and partnered parents 9% of recipients of workforce age, giving a combined total of 23%;
- the wives of age and disability support pensioners, along with the older partners of other pensioners and allowees, comprised 7% of recipients of workforce age;
- recipients of Carer Payment represented 1% of workforce age recipients, and widows a further 1%;
- there were 23,000 veterans of workforce age receiving payment, representing 1% of that group; and
- the remaining 0.2% received special benefit or a disaster relief payment. Of the former, most were older people who did not meet the residence requirements for the Age Pension.

The numbers involved in each of these categories are illustrated in graph S3.5.

There are important differences in receipt of payments by gender, as shown in graph S3.6. Nearly 59% of current income support recipients are women. There are a number of reasons for this. Pension age is lower for women than for men, and there are more women than men over 65. Nearly 17% of men of pension age are receiving veterans' pensions, compared with only 6% of women. Finally, women are slightly more likely than men at all ages to be receiving income support, presumably because of lower income and assets.





In the case of the population of workforce age, men and women have very different patterns of payment. Men predominantly receive unemployment payments (52% of recipients), disability payments (29%) or student assistance (12%). Only 6% receive payments as parents, carers or partners.

On the other hand, over half the women are receiving payments as parents or carers (45%) or as partners or widows (18%), very significantly reducing their reliance on unemployment or disability payments.

Young people (aged 16–26) have a slightly higher rate of reliance on income support than the 27–50 age group, largely due to student assistance. The proportion receiving income support increases markedly from 19% at age 51, reaching 38% by age 59, and 80% by 68.

These estimates of coverage are calculated as rates of receipt by comparing the total number of social security recipients and the total population. For the purposes of analysis, part-rate pensioners are treated the same as persons with no other income apart from government cash benefits. To some extent this will give an exaggerated picture of levels of reliance on income support.

Table S3.7 provides estimates of the distribution of receipt of government pensions and allowances from all sources as a percentage of the

total income of Australian income units<sup>4</sup> in 1997–98. This is a more comprehensive measure of the contribution of government cash payments to incomes.

The table also shows levels and patterns of receipt classified by the age group of the reference person in the income unit, and estimates for sole parents and couples with children—two groups of considerable interest. The identification of cash benefits as the income unit's principal source of income means that it is the largest single source, usually but not always 50% or more. In terms of substantial reliance on income support, the column showing those receiving 90% or more of their income from benefits is most relevant.

While total coverage of pensions and allowances among the population aged 65 years and over is generally around 80%, this table shows that 55% of the age group receive 90% or more of their income from cash benefits. One-parent income units are also likely to have high rates of receipt of government cash benefits, more than 60% of one-parent income units having benefits as their principal source of income, and 37% receiving more than 90% of their income from benefits. In contrast, couples with dependent children have relatively low levels of reliance on benefits, with only 11% having benefits as their principal income source, and 8% receiving 90% or more of their income from this source.

### S3.7 CONTRIBUTION OF GOVERNMENT PENSIONS/ALLOWANCES TO GROSS INCOME OF INCOME UNITS—1997–98(a)

	Nil and less than 1%	1% and less than 20%	20% and less than 50%	50% and less than 90%	90% and over	Total(b)	Principal source of income(c)
	%	%	%	%	%	%	%
Reference person 15–24	69.1	1.9	2.7	2.8	16.2	100.0	19.0
Reference person 25–34	60.0	14.0	5.1	4.2	14.1	100.0	18.3
Reference person 35–44	45.8	28.9	6.6	4.6	12.9	100.0	17.7
Reference person 45–54	63.4	15.0	3.6	3.5	12.8	100.0	16.4
Reference person 55–64	52.4	5.7	4.2	7.7	28.1	100.0	36.3
Reference person 65 and over	13.6	4.0	8.8	16.4	56.5	100.0	73.4
Couple with dependent children	34.7	44.2	8.9	2.9	8.3	100.0	11.2
One-parent	10.7	16.7	11.0	23.8	36.8	100.0	61.6
<b>All income units</b>	<b>50.3</b>	<b>12.5</b>	<b>5.3</b>	<b>6.5</b>	<b>23.0</b>	<b>100.0</b>	<b>29.6</b>

(a) Per cent of income units by per cent of gross income. (b) Total includes income units with nil or negative total income.

(c) Principal source of income is government pensions or allowances.

Source: *Income Distribution, 1997–98* (6523.0).

### S3.8 CONTRIBUTION OF GOVERNMENT PENSIONS/ALLOWANCES TO GROSS INCOME OF INCOME UNITS(a)

	Nil and less than 1%	1% and less than 20%	20% and less than 50%	50% and less than 90%	90% and over	Total(b)	Principal source of income(c)
	%	%	%	%	%	%	%
1981–82	39.2	34.2	3.9	7.5	15.7	100.0	23.2
1985–86	48.3	21.7	2.4	6.8	20.8	100.0	27.7
1990	51.2	19.2	3.2	7.9	18.6	100.0	26.6
1994–95	50.0	13.9	5.1	5.3	23.3	100.0	28.8
1995–96	50.2	13.5	5.1	6.2	22.6	100.0	29.0
1996–97	49.8	13.4	4.6	6.8	23.0	100.0	30.0
1997–98	50.3	12.5	5.3	6.5	23.0	100.0	29.6

(a) Per cent of income units by per cent of gross income. (b) Total includes income units with nil or negative total income.

(c) Principal source of income is government pensions or allowances.

Source: *Income Distribution, various years* (6523.0).

Finally, table S3.8 shows trends since 1981–82 in the distribution of all Australian income units by the proportion of their gross income contributed by government cash benefits. Since the middle of the 1980s between 26% and 30% of Australian income units have had cash benefits as their principal income source. Prior to this the level appeared somewhat lower at around 23%. The role of cash benefits in the income of income units has increased after each recession. The proportion receiving 90% or more of their income from government benefits has of course been lower and, since the increase in unemployment in the early 1990s, has remained stable at around 23%.

## Endnotes

1 The aged are defined as men aged 65 and over, and women aged 60 and over. For the purpose of clarity, the phased increase in women's age pension age has not been taken into account in this discussion.

2 The workforce age population is defined as men aged 15–64 and women aged 15–59 inclusive.

3 Until 1994, partners of allowees were not paid individually. See also notes to table S3.2.

4 Income units are single persons, or groups of persons within households, whose income is assumed to be shared. Income sharing is assumed to take place within married and de facto couples and between parents and dependent children.

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## Introduction

**H**ousing satisfies the essential needs of people for shelter, security and privacy. Shelter is recognised throughout the world as a basic human right. The adequacy or otherwise of housing is an important component of individual wellbeing. Housing also has great significance in the national economy, with its influence on investment levels, interest rates, building activity and employment.

The ways in which Australian families and individuals are housed reflect social, political and economic factors over the last century. For example, public health concerns towards the end of the nineteenth century resulted in legislation in the States which gave local government the authority to make building regulations and inspect dwellings, a responsibility they have to this day. Also at that time, demand for housing exceeded supply, rents were high, and overcrowding and slum conditions continued to be a problem into the twentieth century. This led to States introducing further legislation for the provision of public rental housing for low income earners. In the 1920s, the Commonwealth moved to provide financial assistance for access to home ownership to moderate and low income groups, and a number of policy initiatives over recent decades have focused on this goal. Governments have continued to actively promote home ownership as part of an overall policy directed at achieving people's self-reliance in housing, and a quality of housing adequate for their needs.

The predominance of separate, free standing houses situated on 'quarter acre blocks' within the mainland capital city areas is a feature of Australian urban development. More recently, governments have moved to promote higher housing densities, to provide greater choice of housing types and to make better use of existing infrastructure. This has resulted in changes to urban planning and building regulation. There have been some changes in the nature of housing, and efficiencies in the use of land and infrastructure. However, even within this new framework, green field developments and free standing houses still predominate. Households in such developments are still largely reliant on the family car to access many neighbourhood facilities and services.

This chapter provides information on the types of dwellings Australians live in and their tenure arrangements, the affordability of housing, and the government assistance provided through

housing and income support programs. It is based largely on information from the 1997–98 Survey of Income and Housing Costs, but also draws on house price index data, on data about finance commitments for owner occupation and on administrative data relating to public housing and rent assistance. Care should be taken when comparing statistics from different sources because of differences in the timing, conceptual bases and scope of individual statistical sources.

## Types of dwellings

Table 8.1 shows the number of dwellings of different types in each State and Territory in 1997–98. The table shows that the separate house is the most popular type of dwelling in Australia, making up 79% of all dwellings. Tasmania has the highest proportion of separate houses (84%) and New South Wales the lowest (74%).

Flats, units or apartments are the next most common type of dwelling in Australia, with 12% of all dwellings falling into this category. New South Wales (with 16%) has the highest proportion of flats, units or apartments, followed by the Northern Territory (with 12%). Western Australia and Tasmania have relatively low percentages of flats, units or apartments (with 5% and 6% respectively).

Semi-detached row or terrace houses and town houses comprise 9% of dwellings in Australia. South Australia, Western Australia, Tasmania and the Australian Capital Territory have more semi-detached housing than flats, units or apartments.

## Number of bedrooms

One indicator of dwelling size is the number of bedrooms. In 1997–98, half of all dwellings in Australia had three bedrooms, 23% had four or more bedrooms and 21% had two bedrooms (table 8.2). Of separate houses, 59% had three bedrooms, while two bedroom dwellings were more common in semi-detached houses and flats, units and apartments (49% and 62% respectively).

Over a third (35%) of three bedroom dwellings had only two persons living in them, a further 19% had three persons, and 18% had four persons (table 8.3). About 19% of three bedroom dwellings had only one person living in them. Of two bedroom dwellings, most had one or two persons living in them (42% and 43% respectively).



**8.1 DWELLINGS, By Dwelling Structure and State/Territory—1997–98**

	Separate house	Semi-detached/row or terrace house/townhouse	Flat/unit/apartment	Total(a)	Total(a)
	%	%	%	%	'000
New South Wales	74.0	9.1	16.3	100.0	2 336.5
Victoria	81.2	7.2	11.2	100.0	1 724.7
Queensland	82.2	5.8	10.8	100.0	1 301.6
South Australia	78.5	13.2	7.5	100.0	603.1
Western Australia	81.9	12.9	5.0	100.0	689.3
Tasmania	84.4	9.1	5.8	100.0	185.8
Northern Territory(b)	74.6	11.8	11.6	100.0	52.4
Australian Capital Territory	79.3	12.4	8.0	100.0	118.9
<b>Australia</b>	<b>78.8</b>	<b>8.8</b>	<b>11.7</b>	<b>100.0</b>	<b>7 012.3</b>

(a) Includes other dwellings. (b) Excludes remote and sparsely settled areas.

Source: Unpublished data, Survey of Income and Housing Costs, 1997–98.

**8.2 NUMBER OF DWELLINGS, By Dwelling Structure and Number of Bedrooms—1997–98**

	Separate house	Semi-detached/row or terrace house/townhouse	Flat/unit/apartment	Total(a)
No. of bedrooms	'000	'000	'000	'000
Bedsitter	n.p.	(b)7.9	(b)14.2	<b>24.3</b>
One bedroom	40.1	56.3	211.0	<b>321.2</b>
2 bedrooms	671.4	300.6	505.5	<b>1 491.6</b>
3 bedrooms	3 257.7	229.8	80.9	<b>3 581.7</b>
4 or more bedrooms	1 557.7	24.6	(b)9.3	<b>1 593.4</b>
All dwellings	5 529.0	619.3	821.0	<b>7 012.3</b>

(a) Includes other dwellings. (b) The estimate has a relative standard error of 25% to 50%.

Source: Unpublished data, Survey of Income and Housing Costs, 1997–98.

Information on the incidence of other types of rooms such as bathrooms, toilets, laundries and lounge/dining/family rooms is available from the 1994 Australian Housing Survey.

## Tenure

### Home ownership and renting

Australia has a high rate of home ownership. Of the seven million households in Australia in 1997–98, 70% were living in their own home, and 26% were renting their dwelling from a State housing authority or private landlords (table 8.4).

In 1997–98, 39% of households owned their homes outright. This was a fall from the situation in 1995–96, when 42% of households owned their homes outright. In addition, 30% of households were paying off a mortgage or loan secured against their dwelling.

Of the two million households renting their dwellings, 73% were renting from private landlords, 20% were renting from State housing authorities and the remaining 8% from other landlords.

Around 90% of owners lived in separate houses in 1997–98. Of renter households, 51% lived in separate houses and 29% lived in flats, units or apartments.

Almost one-third of households who owned their own home outright were couples with no children. One parent households accounted for 7% of outright owners, and lone person households made up 26% (based on table 8.5).

The majority (77%) of couple households with dependent children only were owners; just 21% of these households were renting. Of lone parent families, 52% were house owners, 16% were renting from a State housing authority and 28% were renting from private landlords.

**8.3 DWELLINGS, By Number of Persons and Number of Bedrooms—1997–98**

	One person	Two persons	Three persons	Four persons	Five or more	Total	Total
No. of bedrooms	%	%	%	%	%	%	'000
Bedsitter	91.5	n.p.	—	—	—	100.0	24.3
One bedroom	79.5	17.9	(a)1.2	n.p.	n.p.	100.0	321.2
2 bedrooms	42.2	42.7	9.4	4.1	1.6	100.0	1 491.6
3 bedrooms	19.2	34.8	19.2	17.9	8.8	100.0	3 581.7
4 or more bedrooms	6.0	22.8	17.9	26.1	27.2	100.0	1 593.4
<b>All dwellings</b>	<b>24.1</b>	<b>32.9</b>	<b>15.9</b>	<b>16.0</b>	<b>11.1</b>	<b>100.0</b>	<b>7 012.3</b>

(a) The estimate has a relative standard error greater than 50%.

Source: Unpublished data, Survey of Income and Housing Costs, 1997–98.

**8.4 NUMBER OF DWELLINGS, By Dwelling Structure and Tenure Type—1997–98**

	Separate house	Semi-detached/row or terrace house/townhouse	Flat/unit/apartment	Total(a)
Tenure type	'000	'000	'000	'000
Owner without a mortgage	2 473.3	152.1	118.5	<b>2 762.0</b>
Owner with a mortgage	1 925.7	92.3	105.4	<b>2 129.8</b>
Renter				
State housing authority	189.5	104.5	95.4	<b>389.4</b>
Private landlord	739.1	240.3	446.2	<b>1 437.7</b>
Total(b)	1 015.0	365.1	582.1	<b>1 977.5</b>
Rent-free	115.0	(c)9.8	(c)15.0	<b>143.0</b>
<b>Total</b>	<b>5 529.0</b>	<b>619.3</b>	<b>821.0</b>	<b>7 012.3</b>

(a) Includes other dwellings. (b) Includes a small number of other landlord types. (c) The estimate has a relative standard error greater than 50%.

Source: Unpublished data, Survey of Income and Housing Costs, 1997–98.

Tenure patterns vary across States and Territories. Victoria had the highest proportion of overall home ownership, with 75% of dwellings either being purchased or owned outright (table 8.6). The lowest proportion of overall home ownership (43%) was in the Northern Territory. The Australian Capital Territory, Victoria and Western Australia had the highest proportion of households still purchasing their home (34% for all three).

In the Northern Territory more than half (53%) of all households rented their home, significantly higher than the national rate of 28%. The proportion of households renting from private landlords ranged from 16% in South Australia and Tasmania to 25% in Queensland.

The differences in tenure partly reflect differences in the age and life structures across States and Territories (see the section *Life cycle groups*).

## 8.5 TENURE, By Type of Household—1997–98

Type of household	Owner without a mortgage	Owner with a mortgage	State housing authority	Private landlord	Renter		Total
					Total(a)	Rent-free	
	'000	'000	'000	'000	'000	'000	'000
Couple only	916.5	408.0	29.3	238.1	283.3	31.5	1 639.2
Couple with dependent children only	404.2	890.7	49.6	274.0	351.8	25.8	1 672.5
Couple—other	430.3	287.7	23.9	51.5	89.2	n.p.	810.6
<i>Total couples</i>	<i>1 751.0</i>	<i>1 586.4</i>	<i>102.9</i>	<i>563.5</i>	<i>724.3</i>	<i>60.7</i>	<i>4 122.4</i>
One parent—one family	194.2	142.1	102.0	181.2	302.5	(b)9.0	647.8
Lone person	704.5	276.3	165.5	423.0	638.7	64.6	1 684.1
Other	112.3	125.0	(b)19.0	270.0	312.1	(b)8.8	558.1
<b>Total</b>	<b>2 762.0</b>	<b>2 129.8</b>	<b>389.4</b>	<b>1 437.7</b>	<b>1 977.5</b>	<b>143.0</b>	<b>7 012.3</b>

(a) Includes a small number of other landlord types. (b) The estimate has a relative standard error of 25% to 50%.

Source: Unpublished data, Survey of Income and Housing Costs, 1997–98.

## 8.6 TENURE, By State/Territory—1997–98

State/Territory	Owner without a mortgage	Owner with a mortgage	State housing authority	Private landlord	Renter			Total
					Total(a)	Rent-free	Total	
	%	%	%	%	%	%	%	'000
New South Wales	41.1	26.7	5.8	21.7	29.9	2.2	100.0	2 336.5
Victoria	41.4	33.7	3.6	18.2	22.9	2.0	100.0	1 724.7
Queensland	36.9	30.3	3.9	24.5	31.1	1.7	100.0	1 301.6
South Australia	37.8	31.3	10.4	15.7	28.4	2.6	100.0	603.1
Western Australia	37.3	33.5	5.7	19.6	27.5	1.7	100.0	689.3
Tasmania	42.4	30.7	6.5	16.4	25.1	(b)1.8	100.0	185.8
Northern Territory(c)	15.0	27.7	20.4	22.7	53.0	(b)4.3	100.0	52.4
Australian Capital Territory	29.0	33.9	12.4	20.8	36.9	n.p.	100.0	118.9
<b>Australia</b>	<b>39.4</b>	<b>30.4</b>	<b>5.6</b>	<b>20.5</b>	<b>28.2</b>	<b>2.0</b>	<b>100.0</b>	<b>7 012.3</b>

(a) Includes a small number of other landlord types. (b) The estimate has a relative standard error of 25% to 50%. (c) Excludes remote and sparsely settled areas.

Source: Unpublished data, Survey of Income and Housing Costs, 1997–98.

## First home buyers

The information for this article has mostly been taken from the 1988 Housing Survey and the 1997–98 Survey of Income and Housing Costs.

*Income units* are single persons, or groups of related persons within a household whose income is assumed to be shared. Income sharing is assumed to take place within couples and between parents and dependent children. It is assumed that decisions concerning the purchase of a home are also generally made by adults in such units.

*Owner occupiers* are income units who own their home, with or without a mortgage. First home buyers are a subset of owner occupiers.

*First home buyers* are income units who bought their first home in the three years prior to the survey reference period. To be regarded as a first home buying income unit, neither the income unit reference person nor the income unit reference person's spouse could have owned a home previously in Australia.

*Changeover buyers* are income units who bought their home within the same periods described for first home buyers. However, the income unit reference person and/or the income unit reference person's spouse had owned a home previously in Australia.

Over the last decade or so a lower proportion of young Australians have embraced home ownership than previously. Between 1988 and 1997–98, home ownership rates among income units in which the age of the reference person was 25–34 declined from 42% to 34% (table 8.7). Substantial declines were also evident among those aged 35–44, 70% in 1988 compared to 62% in 1997–98.

This trend is in part associated with changing patterns of family formation among young

people. They are staying in education longer, delaying marriage, and having their first child later in life.<sup>1</sup> Consistent with these changes, young people have been delaying buying their first home. Between 1988 and 1997–98, the proportion of first home buyer income units whose reference person was aged less than 35 declined from 70% to 66%. As a result, the median age of first home buyers (median age of reference person) increased from 30.2 years to 31.5 years.

**8.7 AGE DISTRIBUTION OF FIRST HOME BUYERS, AND AGE-SPECIFIC HOME OWNERSHIP RATES(a)—1988 and 1997–98**

	First home buyers		All owner occupiers	
	1988	1997–98	1988	1997–98
	%	%	rate(a)	rate(a)
Age of income unit reference person				
15–24 years	14.6	10.7	4.6	4.1
25–34 years	55.8	55.6	42.3	34.5
35–44 years	19.2	22.9	70.5	61.7
45–54 years	5.7	6.0	76.7	75.7
55 years or older	4.7	4.8	78.4	78.1
Total income units	100.0	100.0	53.9	54.2
	'000	'000	'000	'000
Total income units	391.0	463.4	4 095.8	4 948.2
	years	years	years	years
Median age	30.2	31.5	49.4	51.0

(a) As a proportion of all income units in each age group.

Source: Unpublished data, Housing Survey, 1988; Survey of Income and Housing Costs, 1997–98.

## Changing preconditions for buying the first home

Some young people purchase their first home before they establish family relationships of their own. In 1997–98, about 4% of one-person income units aged less than 35 (and slightly higher proportions of women than men) had recently purchased their first home (table 8.8). Although there were more owner occupiers among young people in this age range in 1997–98 (8%) than in 1988 (6%), there has been little change over the decade to the strongly prevailing social norm of partnering prior to purchasing property.

Of all income unit types, young couples are most likely to be first home buyers. In 1997–98, 23% of all couples in which the reference person was aged less than 35 were first home buyers. Moreover, 58% of these young couples lived in a home that they owned with or without a mortgage. Young couples who were in a registered marriage were more likely than those who were in a de facto marriage to own their home (65% compared to 40%). Nevertheless, while clearly still strong, the importance of registered marriage has diminished for making the commitment that accompanies purchasing a home. Between 1988 and 1997–98, the proportion of young de facto married couples who owned their home increased (by 11 percentage points, up from 29%), while it remained about the same among young

registered married couples (1 percentage point down from 66%).

## Types and characteristics of dwellings purchased

Although separate houses have continued to be the most favoured form of housing, there has been some shift among first home buyers towards higher density housing. In 1997–98, 17% of first home buyers had purchased medium-to-high density accommodation (such as a semi-detached, row or terrace house, flat, unit or high rise apartment) as opposed to a separate house, up from 14% in 1988 (table 8.9).

Between 1988 and 1997–98 there was also, among first home buyers, movement away from buying new homes towards buying homes that had been previously lived in. The proportion of first home buyers who bought a new home fell from 23% in 1988 to 18% in 1997–98 (table 8.10). This change, as well as the move away from separate houses, suggests that homes in more established areas have become more affordable and popular with first home buyers than homes in urban fringe developments.

Consistent with the national trend, first home buyers are purchasing larger dwellings as measured by the number of bedrooms. In 1997–98, 17% of first home buyers bought a home with more than three bedrooms, compared to 13% in 1988.

**8.8 FIRST HOME BUYER AND OVERALL HOME OWNERSHIP RATES(a)—1988 and 1997–98**

	First home buyers			All owner occupiers			Total income units 1997–98
	1988	1997–98		1988	1997–98		
Age of reference person by income unit type	%(a)	%(a)	'000	%(a)	%(a)	'000	'000
Less than 35 years							
One person	3.4	4.3	95.5	6.0	8.4	186.2	2 207.7
Men	3.5	4.1	54.6	6.3	8.5	111.8	1 320.8
Women	3.1	4.6	40.9	5.6	8.4	74.4	886.9
Couple	20.2	23.1	202.3	61.1	57.6	505.0	877.3
Registered marriage	20.7	21.9	137.2	66.1	64.6	403.7	625.2
De facto marriage	16.5	25.8	65.1	29.0	40.2	101.2	252.1
35 years or more							
One person	2.3	1.7	36.0	59.5	55.3	1 173.5	2 120.6
Couple	2.8	3.3	112.9	85.3	85.2	2 903.4	3 406.9
Registered marriage	2.7	3.0	95.8	86.0	86.4	2 801.3	3 242.0
De facto marriage	(b)5.4	(b)10.4	(b)17.1	59.7	61.9	102.1	164.9
Total income units(c)	5.1	5.1	463.4	53.9	54.2	4 948.2	9 129.4

(a) As a proportion of all income units of each type. (b) The estimate has a relative standard error of 25% to 50%. (c) Includes one-parent income units.

Source: Unpublished data, Housing Survey, 1988; Survey of Income and Housing Costs, 1997–98.

**8.9 DWELLING STRUCTURE CHOSEN BY RECENT HOME BUYERS—1988 and 1997–98**

	1988		1997–98	
	First home buyers	Changeover buyers	First home buyers	Changeover buyers
	%	%	%	%
Dwelling structure				
Separate house	85.3	85.3	81.8	85.7
Semi-detached houses and flats(a)	13.9	13.7	16.9	13.8
Total income units(b)	100.0	100.0	100.0	100.0
	'000	'000	'000	'000
Total income units(b)	391.0	600.1	463.4	646.3

(a) Includes all semi-detached, row, terrace and townhouses, flats and units but excludes houses/flats attached to shops etc.

(b) Includes income units living in a dwelling structure other than a separate house, semi-detached house or flat.

Source: Unpublished data, Housing Survey, 1988; Survey of Income and Housing Costs, 1997–98.

**8.10 AGE AND SIZE OF HOMES BOUGHT BY FIRST HOME BUYERS—1988 and 1997–98**

	1988	1997–98
	%	%
Age of home		
New home	23.1	17.7
Established home	76.9	82.3
Number of bedrooms		
One(a)	4.2	(b)2.4
Two	23.0	23.6
Three	59.8	56.6
Four	11.8	15.4
Five or more	1.3	(b)2.0
Total income units	100.0	100.0
	'000	'000
Total income units	391.0	463.4

(a) Includes bedsitters. (b) The estimate has a relative standard error of 25% to 50%.

Source: Unpublished data, Housing Survey, 1988; Survey of Income and Housing Costs, 1997–98.

**8.11 HOUSING COSTS AS A PROPORTION OF INCOME—1988 and 1997–98**

	1988	1997–98
	%	%
Housing tenure		
First home buyers	22.5	21.4
All owners without a mortgage	3.2	3.2
All owners with a mortgage	19.6	20.0
Renters	20.5	21.1
All income units(a)	12.4	13.4

(a) Includes other forms of housing tenure such as boarding and living rent free.

Source: Unpublished data, Housing Survey, 1988; Survey of Income and Housing Costs, 1997–98.

**Affordability**

The cost of purchasing a home, and of meeting the associated establishment costs, is a major issue of concern to first home buyers. In June 1999, the average mortgage of first home buyers was \$127,700.<sup>2</sup> Recent first home buyers spent about the same share of their income on housing in 1988 and 1997–98 (table 8.11).

There is no single standard method for defining people who are experiencing housing affordability problems. However, one measure used in housing research is the ratio of housing costs to income for those income units whose income is relatively low (that is, those in the bottom 40% of the income unit income distribution). Among these units, those whose housing costs consume more than 30% of their income are considered to be experiencing affordability problems.<sup>3</sup> According to this criterion, 6% of first home buyers in 1997–98 experienced housing affordability problems. Of these, 47% were one-person income units, 35% were couples with dependants, 9% were couple only income units and 8% were one-parent income units.

However, it should be noted that for some owner occupiers with a mortgage, housing affordability problems may be self-imposed. Such owner occupiers may choose to repay large amounts in the short term to acquire an asset that tends to appreciate in value over the long term.

**Endnotes**

1 *Australian Social Trends* (4102.0).

2 *Housing Finance For Owner Occupation, Australia* (5609.0).

3 National Housing Strategy 1992, *The Affordability of Australian Housing, Issues Paper No.2*, AGPS, Canberra.

## Housing affordability

### Housing costs

Housing costs cover different items for different types of tenure. For households renting their dwelling, housing costs comprise the regular rental amounts paid to landlords. For owners with a mortgage, housing costs comprise the value of the mortgage payments as well as property rates. For owners who have no mortgage, housing costs comprise only the rates paid.

In 1997–98, mean weekly housing costs for all owner and renter households were \$110 (table 8.12). However, there was considerable variation in housing costs, with half of all households having payments of less than \$71 per week.

Housing costs for owners with a mortgage, at an average of \$205 per week, were higher than for other forms of tenure. Households renting from private landlords had mean weekly housing costs of \$157, compared to \$63 for tenants of State housing authorities.

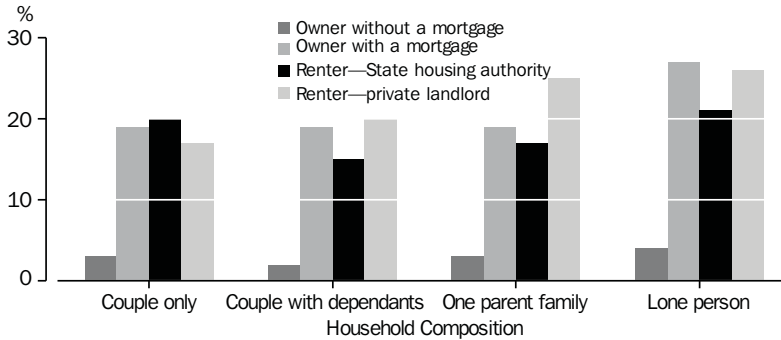
**8.12 HOUSING COSTS, By Tenure Type and Household Composition—1997–98**

Tenure type	Couple only	Couple with dependent children only	Couple-other	Total couples	One parent-one family	Lone person	Other	Total
<b>MEAN WEEKLY HOUSING COSTS (\$)</b>								
Owner without a mortgage	20	27	23	22	19	16	31	<b>21</b>
Owner with a mortgage	220	214	196	212	154	178	233	<b>205</b>
Renter—State housing authority	75	99	115	96	63	39	(a)85	<b>63</b>
Renter—private landlord	160	181	211	175	141	126	180	<b>157</b>
Total renters(b)	147	161	165	156	111	98	169	<b>132</b>
Total owner and renter households	93	157	100	120	93	76	155	<b>110</b>
<b>MEAN WEEKLY INCOME (\$)</b>								
Owner without a mortgage	625	1 165	1 347	927	748	378	1 008	<b>778</b>
Owner with a mortgage	1 127	1 134	1 620	1 221	800	670	1 389	<b>1 131</b>
Renter—State housing authority	377	679	821	626	371	186	(a)605	<b>371</b>
Renter—private landlord	925	886	1 521	961	557	477	989	<b>773</b>
Total renters(b)	861	860	1 338	920	506	396	963	<b>694</b>
Total owner and renter households	794	1 083	1 443	1 040	645	435	1 069	<b>863</b>
<b>MEAN HOUSING COSTS AS A PROPORTION OF INCOME (%)</b>								
Owner without a mortgage	3	2	2	2	3	4	3	<b>3</b>
Owner with a mortgage	19	19	12	17	19	27	17	<b>18</b>
Renter—State housing authority	20	15	14	15	17	21	(a)14	<b>17</b>
Renter—private landlord	17	20	14	18	25	26	18	<b>20</b>
Total renters(b)	17	19	12	17	22	25	18	<b>19</b>
Total owner and renter households	12	14	7	12	14	17	15	<b>13</b>
<b>HOUSEHOLDS ('000)</b>								
Owner without a mortgage	916.5	404.2	430.3	1 751.0	194.2	704.5	112.3	<b>2 762.0</b>
Owner with a mortgage	408.0	890.7	287.7	1 586.4	142.1	276.3	125.0	<b>2 129.8</b>
Renter—State housing authority	29.3	49.6	23.9	102.9	102.0	165.5	(a)19.0	<b>389.4</b>
Renter—private landlord	238.1	274.0	51.5	563.5	181.2	423.0	270.0	<b>1 437.7</b>
Total renters(b)	283.3	351.8	89.2	724.3	302.5	638.7	312.1	<b>1 977.5</b>
Total owner and renter households(c)	1 607.7	1 646.8	807.2	4 061.7	638.9	1 619.5	549.3	<b>6 869.3</b>

(a) The estimate has a relative standard error of 25% to 50%. (b) Includes other renters. (c) Excludes rent-free households.

Source: *Housing Occupancy and Costs, Australia (4130.0)*.

### 8.13 MEAN HOUSING COSTS AS A PERCENTAGE OF INCOME, By Tenure Type and Household Composition



Source: *Housing Occupancy and Costs, Australia (4130.0)*.

### 8.14 HOUSING COSTS AS A PROPORTION OF INCOME, By Tenure Type—1997–98

Housing costs as a proportion of income	Owner without a mortgage	Owner with a mortgage	Renter			Total
			State housing authority	Private landlord	Total(a)	
	%	%	%	%	%	%
25 or less	97.2	67.5	87.3	53.9	62.9	<b>78.1</b>
26–30	(b)0.2	10.2	7.9	9.9	9.1	<b>5.9</b>
31–50	0.8	15.7	(b)4.5	23.9	18.6	<b>10.5</b>
More than 50	0.9	5.5	n.p	10.8	8.2	<b>4.4</b>
Total(c)	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
	'000	'000	'000	'000	'000	'000
Households	2 762.0	2 129.8	389.4	1 437.7	1 977.5	<b>6 869.3</b>

(a) Includes a small number of other landlord types. (b) The estimate has a relative standard error of 25% to 50%. (c) Includes households with nil or negative total income.

Source: *Unpublished data, Survey of Income and Housing Costs, 1997–98*.

For many households, weekly housing costs are a significant proportion of their weekly income. In 1997–98, housing costs represented 18% of weekly income for owners with a mortgage, 17% of weekly income for tenants of State housing authorities and 20% of weekly income for tenants renting from private landlords. Housing costs as a proportion of income differed depending on tenure type and household composition (graph 8.13).

Furthermore, housing costs represented over 25% of weekly income for almost a third of households who were paying off a housing mortgage and for over 45% of households renting from a private landlord (table 8.14). This can have a major effect on funds left over for households to spend on other necessities such as food, clothing and transport. For low income

households in particular, the level of housing costs may be a major factor in determining the economic wellbeing of the occupants.

### Life cycle groups

Households can vary considerably in terms of their size and composition, as well as their housing tenure and the type of dwelling they occupy. All of these factors, along with location of the dwelling, influence their housing costs.

Households may be small, as with young single person households and those comprising young childless couples. They tend to grow in size as the couples get older and have children. Household size usually reaches its peak when parents and their dependent and adult children share the same dwelling. As children leave home, household size again declines.



**8.15 HOUSING COSTS, By Tenure Type and Selected Life Cycle Groups—1997–98**

Selected life cycle groups	Owner without a mortgage	Owner with a mortgage	State housing authority	Private landlord	Renter Total(a)	Total
MEAN WEEKLY HOUSING COSTS (\$)						
Lone person only, under 35	(b)14	202	(b)45	124	113	133
Couple only, reference person under 35	(b)22	261	n.p.	173	171	212
Couple with dependent children only	27	214	99	181	161	157
One parent with dependent children	21	162	62	136	107	107
Couple with non-dependent children only	22	165	(b)109	(b)173	126	71
Couple only, reference person 55 to 64	21	156	(b)64	(b)123	102	49
Couple only, reference person 65 and over	18	68	57	125	94	25
Lone person only, 65 and over	15	(b)84	39	111	58	26
MEAN WEEKLY INCOME (\$)						
Lone person only, under 35	(b)606	681	(b)193	477	454	527
Couple only, reference person under 35	(b)1 132	1 220	n.p.	1 023	1 017	1 130
Couple with dependent children only	1 165	1 134	679	886	860	1 083
One parent with dependent children	653	680	361	432	417	515
Couple with non-dependent children only	1 395	1 575	(b)901	(b)1 901	1 469	1 452
Couple only, reference person 55 to 64	703	850	(b)297	(b)553	557	718
Couple only, reference person 65 and over	464	610	279	420	359	461
Lone person only, 65 and over	271	(b)220	189	228	203	254
MEAN HOUSING COSTS AS A PROPORTION OF INCOME (%)						
Lone person only, under 35	(b)2	30	(b)23	26	25	25
Couple only, reference person under 35	(b)2	21	n.p.	17	17	19
Couple with dependent children only	2	19	15	20	19	14
One parent with dependent children	3	24	17	32	26	21
Couple with non-dependent children only	2	10	(b)12	(b)9	9	5
Couple only, reference person 55 to 64	3	18	(b)22	(b)22	18	7
Couple only, reference person 65 and over	4	11	21	30	26	5
Lone person only, 65 and over	6	(b)38	21	49	29	10
HOUSEHOLDS ('000)						
Lone person only, under 35	(b)18.7	94.1	(b)16.2	191.0	221.5	334.3
Couple only, reference person under 35	(b)15.8	189.0	n.p.	139.9	148.4	353.1
Couple with dependent children only	404.2	890.7	49.6	274.0	351.8	1 646.8
One parent with dependent children	60.3	96.1	89.0	148.7	248.8	405.3
Couple with non-dependent children only	269.3	122.3	(b)10.2	(b)13.9	29.1	420.7
Couple only, reference person 55 to 64	282.8	61.9	(b)4.6	(b)16.9	24.7	369.4
Couple only, reference person 65 and over	477.8	16.0	14.6	19.8	37.7	531.4
Lone person only, 65 and over	460.8	(b)14.4	86.0	35.1	139.3	614.5

(a) Includes other renters. (b) The estimate has a relative standard error of 25% to 50%.

Source: *Housing Occupancy and Costs, Australia (4130.0)*.

The tenure of the dwelling tends to follow a similar progression to the life cycle of the occupants. This cycle follows a pattern of renting accommodation in early adulthood, moving to home purchase and mortgages while raising a family, and owning the accommodation outright without any mortgage in older age. Other factors that affect housing payments, such as income, are similarly related to life cycle stages. Housing payments and tenure are examined below, and illustrated in table 8.15, in terms of life cycle progression.

### Young single households

Young lone person households are relatively few in number. In 1997–98, these households numbered 334,300. The majority of young singles under the age of 35 are still living with their parent(s) and many others are sharing houses. It is estimated that in 1997–98 there were 258,600 households with related and unrelated young singles.

The high cost of living alone is probably one of the deciding factors in the choice of shared housing for the young. For young singles living alone in 1997–98, 57% were living in private rental accommodation, with average weekly housing costs of \$124. This constituted an average of 26% of gross weekly income for these households. An additional 28% of these young single households had embarked on home purchase and were paying off a mortgage. Their average housing costs were higher at \$202 per week or 30% of gross weekly income.

### **Couples only, under 35 years**

Young couple households were more likely to have moved into home purchase than their single counterparts. Of the 353,100 young couple only households in 1997–98, about 189,000 or 54% were paying off a mortgage. Their average weekly housing costs were \$261, 21% of gross weekly income. An additional 40% of young couple households were renting from private landlords and paying an average of \$173 per week (17% of gross weekly income).

### **Couple households with dependent children only**

The trend to home purchase increases as couples become parents and raise their children. In 1997–98, 54% of couples with dependent children only were paying off a mortgage and 25% were owners without a mortgage. Over one-fifth were still renting their accommodation, mainly from private landlords. Average weekly housing costs varied for different types of tenure. Of couple households with dependent children only, those with mortgages had average weekly housing costs of \$214 or 19% of gross weekly income. Those without a mortgage had average weekly housing costs of \$27. Households renting from private landlords were paying \$181 per week or 20% of gross weekly income.

### **Lone parent households**

In 1997–98, 15% of one-parent households owned their homes without a mortgage, 24% were still paying off a mortgage and 61% were renting their accommodation. Compared to most other households, a high proportion of one-parent households (22%) were renting from a State housing authority.

Housing costs for one-parent households ranged from an average of \$21 per week for owners without a mortgage to a high of \$162 for owners with a mortgage. For those households with a

mortgage, housing costs constituted an average of 24% of gross weekly income. Of the lone parent households renting, those renting from private landlords paid an average of \$136 or 32% of gross weekly income, while those renting from State housing authorities paid an average of \$62 or 17% of gross weekly income.

Incomes also varied considerably across one-parent households, mainly reflecting their different attachments to the labour force. Owners paying off a mortgage tended to have higher average weekly incomes than those in other tenancy arrangements, \$680 compared to \$432 for those renting from a private landlord and \$361 for those renting from a State housing authority.

### **Early retirement years**

The need to accommodate dependent children has ceased by the time many parents reach their mid-fifties. Some older couples (420,700 in 1997–98) have only non-dependent children present, and a smaller number of them (369,400 in 1997–98) were again living alone.

The wide disparity in income for couple only families in this age group is clear from the fact that, while the mean weekly household income was \$718, around 50% of these households had an income of less than \$524 (median income).

Almost 77% of couple only families aged 55–64 were owners without a mortgage. Their housing payments were low at an average of \$21 per week, 3% of total household income. About 17% of the households were owners with a mortgage, and both this group, and those who were renting, were paying substantially higher proportions of their income in housing payments, 18% in both cases.

### **Older households**

By the traditional retirement age of 65 years, both incomes and housing payments have been greatly reduced. In 1997–98, 90% of older couple households were owners without a mortgage, with average weekly housing costs of \$18 or 4% of gross weekly income. For older couples who still had a mortgage, their repayments were lower than those of their younger counterparts, at an average of \$68 per week or 11% of gross weekly income. This reflects in part the fact that these households may have purchased their first home some 10 to 20 years earlier when home prices and mortgages were considerably lower.

However, for the small proportion of older couples who were renting, housing payments consumed relatively large proportions of their incomes. In 1997–98, about 37,700 or 7% of couples aged 65 and over were renting, with average housing payments of \$94 or 26% of their average weekly income. The 19,800 who were renting from private landlords were spending an average of 30% of their income on housing payments, and the 14,600 who were renting from State housing authorities were spending an average of 21%.

In 1997–98, there were about 614,500 lone person households with the occupant aged 65 years or over. Older people living alone were less likely to be owners without a mortgage than older couples, 75% and 90% respectively. A relatively high proportion of older people living alone were renting from State housing authorities, 14% in

1997–98. A further 6% were renting from private landlords. Generally, while the dollar value of their housing costs was lower than that of older couples with similar tenure, lone older people were paying slightly higher proportions of their incomes towards their housing.

### Capital cities

In 1997–98, the mean weekly housing costs for households in all capital cities was \$122 (table 8.16). However, there was considerable variation between capital cities. Hobart had the lowest mean housing costs at \$83 per week. Sydney and Canberra had the highest mean housing costs at \$138 and \$136 per week respectively.

Housing costs for home owners without a mortgage were similar across all capital cities, ranging from an average of \$18 a week in Perth and Adelaide to \$27 per week in Brisbane.

#### 8.16 HOUSING COSTS, By Tenure Type and Capital City—1997–98

Tenure type	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra	All capital cities(a)
MEAN WEEKLY HOUSING COSTS (\$)								
Owner without a mortgage	25	22	27	18	18	20	25	23
Owner with a mortgage	269	207	201	174	193	142	241	218
Renter—State housing authority	59	71	61	60	68	(b)54	80	64
Renter—private landlord	210	153	147	136	135	129	166	171
Total renters(c)	172	138	132	103	119	106	127	143
Total owner and renter households	138	117	122	98	106	83	136	122
MEAN WEEKLY INCOME (\$)								
Owner without a mortgage	1 025	807	955	629	833	612	1 043	888
Owner with a mortgage	1 332	1 188	1 242	1 043	1 129	963	1 229	1 213
Renter—State housing authority	339	413	399	308	423	(b)244	462	372
Renter—private landlord	1 016	773	681	681	716	580	929	838
Total renters(c)	850	722	665	530	646	490	755	734
Total owner and renter households	1 053	924	959	747	889	695	1 000	949
MEAN HOUSING COSTS AS A PROPORTION OF INCOME (%)								
Owner without a mortgage	2	3	3	3	2	3	2	3
Owner with a mortgage	20	17	16	17	17	15	20	18
Renter—State housing authority	17	17	15	20	16	(b)22	17	17
Renter—private landlord	21	20	22	20	19	22	18	20
Total renters(c)	20	19	20	19	18	22	17	19
Total owner and renter households	13	13	13	13	12	12	14	13
HOUSEHOLDS ('000)								
Owner without a mortgage	573.6	483.1	180.7	149.7	191.1	31.5	34.5	1 652.1
Owner with a mortgage	385.6	440.9	195.0	148.0	174.4	25.2	40.3	1 423.9
Renter—State housing authority	87.7	47.5	33.4	44.5	26.8	(b)5.4	14.8	270.6
Renter—private landlord	332.8	234.3	145.2	66.8	97.1	13.2	24.7	926.1
Total renters(c)	454.9	295.9	185.4	121.5	127.8	20.3	43.9	1 277.3
Total owner and renter households	1 414.1	1 219.8	561.1	419.2	493.3	77.0	118.7	4 353.3

(a) Includes households in the Northern Territory, for which disaggregated data are not acceptable for most purposes. (b) The estimate has a relative standard error of 25% to 50%. (c) Includes other renters.

Source: Unpublished data, Survey of Income and Housing Costs, 1997–98.

For home owners with a mortgage, mean weekly housing costs were highest in Sydney and Canberra (\$269 and \$241 respectively), while they were lowest in Hobart (\$142).

For households renting from private landlords, housing costs were significantly higher in Sydney where private rents averaged \$210 per week. The lowest rent was recorded in Hobart at an average of \$129 per week.

Mean weekly housing costs for households renting from State or Territory housing authorities ranged from \$54 in Hobart to \$80 in Canberra.

### House prices

House price indexes enable the comparison of price changes between cities, though not the price levels themselves.

From 1997–98 to 1998–99, the price index of established houses increased in all capital cities except Darwin and Hobart. Darwin recorded the greater drop in prices (2.7%), while the prices in Hobart decreased by 1.8% (table 8.17).

The greatest rise in established house prices in 1998–99 was recorded in Melbourne (10.9%). Other capital city price rises were in Sydney (7.3%), Perth (4.9%), Adelaide (1.8%), Canberra (1.6%) and Brisbane (1.5%). The weighted average of eight capitals index rose by 6.2%.

In 1998–99, project home prices (cost of new dwellings excluding land) rose in all cities except Hobart, where there was no change (table 8.18). Perth (3.8%) recorded the largest increase, followed by Melbourne (3.6%), Adelaide (3.4%), Sydney (2.7%), Darwin (1.2%), Brisbane (0.9%), and Canberra (0.7%). The weighted average of eight capitals index rose by 2.5%.

The price index of materials used in house building is discussed in *Chapter 20, Construction*.

**8.17 PRICE INDEX NUMBERS FOR ESTABLISHED HOUSES(a)**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra
INDEX NUMBER								
1996–97	118.9	101.4	137.2	108.2	109.2	128.5	196.9	126.4
1997–98	128.5	114.3	138.9	112.1	113.3	125.4	198.9	126.2
1998–99	137.9	126.8	141.0	114.1	118.9	123.2	193.6	128.2
CHANGE FROM PREVIOUS YEAR (%)								
1996–97	2.7	3.9	0.3	–0.1	0.9	–1.0	4.7	–1.1
1997–98	8.1	12.7	1.2	3.6	3.8	–2.4	1.0	–0.2
1998–99	7.3	10.9	1.5	1.8	4.9	–1.8	–2.7	1.6

(a) Reference base year 1989–90 = 100.0.

Source: *House Price Indexes: Eight Capital Cities (6416.0)*.

**8.18 PRICE INDEX NUMBERS FOR PROJECT HOMES(a)**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra
INDEX NUMBER								
1996–97	110.4	107.7	112.7	108.3	101.3	123.3	136.0	123.6
1997–98	112.2	108.6	112.4	113.1	102.2	123.3	137.3	123.5
1998–99	115.2	112.5	113.4	117.0	106.1	123.3	139.0	124.4
CHANGE FROM PREVIOUS YEAR (%)								
1996–97	0.2	0.4	–0.9	–4.0	–0.3	–0.1	4.7	–0.9
1997–98	1.6	0.8	–0.3	4.4	0.9	0.0	1.0	–0.1
1998–99	2.7	3.6	0.9	3.4	3.8	0.0	1.2	0.7

(a) Reference base year 1989–90 = 100.0.

Source: *House Price Indexes: Eight Capital Cities (6416.0)*.

## Value of dwellings

In the 1997–98 Survey of Income and Housing Costs, owners were asked to estimate the value of their dwelling. These estimates may differ from valuations made by accredited valuers or the actual sale price of the dwelling. The extent of the difference has not been measured. Therefore some care needs to be exercised in the use of these data.

The median owner-estimated value of dwellings for capital cities was \$164,000, 13% higher than the national median (\$145,200). The median value was highest in Sydney at \$251,200 and lowest in Adelaide at \$116,100 (table 8.19).

## Housing finance for owner occupation

In 1998–99, a total of \$61,474m was committed by all lenders for the purchase of 487,977 dwellings (table 8.20). The number of commitments in 1998–99 was little different from the previous year. However, the value of loans rose 12.5% as a result of an 11.2% increase in the average borrowing size over the period, to \$126,000. In 1998–99, 80.2% of the money was used to purchase or refinance established dwellings,

15.2% to finance construction of new dwellings, and the remainder (4.6%) was used to purchase newly erected dwellings.

Commitments for the construction of dwellings fell by 1.1% in 1998–99 to 73,445, while commitments for the purchase of newly erected dwellings fell by 13.4% to 20,153. However, established dwelling commitments (including refinancing) increased by 2.5% to 394,379.

Banks continued to be the predominant lenders. Banks' market share rose to 83.5% of total commitments in 1998–99, up from 81.2% in the previous year. The number of commitments made by banks for housing finance totalled 404,159 during 1998–99, a rise of 3.3% from the previous year. This increase contrasted with a fall in the number of loans committed by other lenders, down by 6,173 commitments or 8.7% to 65,024. The number of finance commitments made to individuals by permanent building societies also fell, down 4.7% to 18,794.

In 1998–99 the average borrowing from banks was \$127,400 (up 12.5% from 1997–98), permanent building societies \$117,800 (up 8.9%), and \$119,400 from other lenders (an increase of 3.7%).

**8.19 VALUE OF DWELLINGS(a), By Dwelling Structure and Capital City—1997–98**

	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra	All capital cities(b)	All owner households
MEDIAN VALUE OF DWELLINGS (\$'000)									
Separate house	251.8	150.0	155.4	116.9	158.1	118.1	154.4	163.9	145.7
Semi-detached/row or terrace									
house/townhouse	253.4	165.4	(c)141.5	104.0	106.8	(c)106.5	(c)135.4	168.0	140.8
Flat/unit/apartment	236.9	112.1	(c)114.2	(c)100.3	(c)94.8	(c)84.7	n.p.	161.3	153.0
<b>All dwellings(d)</b>	<b>251.2</b>	<b>148.2</b>	<b>152.9</b>	<b>116.1</b>	<b>152.4</b>	<b>116.9</b>	<b>152.2</b>	<b>164.0</b>	<b>145.2</b>
NUMBER ('000)									
Dwellings	959.2	924.0	375.7	297.7	365.5	56.7	74.8	3 076.0	4 891.8

(a) According to owners. (b) Includes households in the Northern Territory, for which disaggregated data are not acceptable for most purposes. (c) The estimate has a relative standard error of 25% to 50%. (d) Includes other dwellings.

Source: Unpublished data, Survey of Income and Housing Costs, 1997–98.

**8.20 SECURED HOUSING FINANCE COMMITMENTS(a), By Purpose and Type of Lender**

Type of lender					
Unit	Banks	Permanent building societies	Other lenders(b)	Total	
CONSTRUCTION OF DWELLINGS					
Dwelling units					
1996-97	no.	58 191	2 880	4 798	65 869
1997-98	no.	63 325	3 732	7 160	74 217
1998-99	no.	62 458	3 742	7 245	73 445
Value of commitments					
1996-97	\$m	5 825	338	482	6 648
1997-98	\$m	7 014	487	877	8 380
1998-99	\$m	7 934	518	902	9 353
PURCHASE OF NEWLY ERECTED DWELLINGS					
Dwelling units					
1996-97	no.	19 356	281	3 415	23 052
1997-98	no.	18 889	227	4 154	23 270
1998-99	no.	17 903	278	1 972	20 153
Value of commitments					
1996-97	\$m	2 276	33	345	2 654
1997-98	\$m	2 402	30	476	2 907
1998-99	\$m	2 483	36	284	2 803
PURCHASE OF ESTABLISHED DWELLINGS(c)					
Dwelling units					
1996-97	no.	323 173	16 544	52 799	392 516
1997-98	no.	309 033	15 770	59 883	384 686
1998-99	no.	323 798	14 774	55 807	394 379
Value of commitments					
1996-97	\$m	33 383	1 660	5 635	40 677
1997-98	\$m	34 883	1 617	6 874	43 374
1998-99	\$m	41 081	1 659	6 578	49 318
TOTAL					
Dwelling units					
1996-97	no.	400 720	19 705	61 012	481 437
1997-98	no.	391 247	19 729	71 197	482 173
1998-99	no.	404 159	18 794	65 024	487 977
Value of commitments					
1996-97	\$m	41 484	2 031	6 462	49 979
1997-98	\$m	44 299	2 134	8 227	54 661
1998-99	\$m	51 498	2 213	7 764	61 474

(a) Excludes alterations and additions. (b) Includes mortgage managers. (c) Includes refinancing.

Source: *Housing Finance for Owner Occupation, Australia* (5609.0).

## Housing assistance

While most Australians are able to house themselves without government assistance, such assistance remains important for various population groups, especially low income earners and social security recipients. Housing assistance is provided by the Commonwealth Government and the State and Territory Governments through a range of housing and other programs. Assistance for people with low incomes is provided through public housing, home purchase assistance and rent assistance schemes. Assistance is also provided to community organisations and local governments for refugees and crisis accommodation.

The *Housing Assistance Act 1996* provides the legislative basis for the Commonwealth's provision of financial assistance to the States and Territories for housing and related purposes. The Act authorised the Commonwealth to form and enter into a Commonwealth State Housing Agreement (CSHA) with the States and Territories. The 1996 CSHA expired on 30 June 1999. A new CSHA was agreed and commenced on 1 July 1999. Unlike the 1996 CSHA, it provides for bilateral housing agreements between the Commonwealth and each State and Territory. The CSHA sets out the terms for the provision of housing assistance for rental housing, home purchase and other specific housing programs. Details of Commonwealth assistance provided under the CSHA for 1998–99 are set out in table 8.21.

The 1999 CSHA provides more flexibility to address the specific circumstances of each State and Territory. The agreement also provides for a National Housing Data Agreement which will improve the quality and comparability of data and performance measurements under the CSHA.

The Australian Institute of Health and Welfare (AIHW) will work with the Commonwealth and the States and Territories in establishing and undertaking the management, at the national level, of the components of this data agreement. The components include three schedules for a minimum data set, national performance indicators, and national data definitions and standards.

## Public housing

Public housing comprises dwellings owned and managed by State and Territory housing authorities and which are made available at low cost to tenants. Rents are generally set at a maximum of 25% of income, thereby providing low cost housing to people on low incomes. The median weekly housing costs for those renting from a State housing authority in 1997–98 were \$53, compared to \$143 for those renting from a private landlord. Government expenditure on public housing was approximately \$1.3b in 1998–99.

Over recent decades, public housing has been increasingly targeted towards those most in need. In 1997–98, 394,507 households (6% of all households) were living in public housing; of these, about 78% were in the lowest 40% of the household income distribution. Government pensions and benefits were the main source of income for the majority of households in public housing.

## Home purchase assistance

Under the CSHA, the State and Territory Governments provide home purchase assistance to low to moderate income earners, including loans, shared equity schemes, deposit assistance and mortgage relief.

**8.21 COMMONWEALTH STATE HOUSING AGREEMENT, Payments to States(a)—1998–99**

	NSW	Vic.	Qld	WA	SA	Tas.	ACT	NT	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Base Funding(b)	256 461	188 181	84 094	73 653	55 306	23 171	12 295	10 621	<b>703 782</b>
Community Housing Program	21 663	15 896	11 784	6 221	5 094	1 621	1 061	650	<b>63 990</b>
Aboriginal Rental Housing Program	17 777	3 638	25 227	15 862	8 342	696	0	19 458	<b>91 000</b>
Crisis Accommodation Program	13 425	9 850	7 303	3 855	3 157	1 004	658	403	<b>39 655</b>
<b>Total</b>	<b>309 326</b>	<b>217 565</b>	<b>128 408</b>	<b>99 591</b>	<b>71 899</b>	<b>26 492</b>	<b>14 014</b>	<b>31 132</b>	<b>898 427</b>

(a) Following deduction of final State fiscal contributions. (b) Net of State fiscal contributions.

Source: Department of Family and Community Services.



## Rent assistance

Under the Commonwealth Government Rent Assistance Program, rent assistance is paid to people who rent privately (including boarders and lodgers, residents in retirement villages, caravan parks, etc.) and pay rent above minimum threshold rental levels. It is a non-taxable supplement payable by the Departments of Family and Community Services, Veterans' Affairs, and Education, Training and Youth Affairs to people with low incomes who are eligible. As at December 1998 there were about 930,000 recipients of rent assistance, 3% more than in 1995–96. Total expenditure on rent assistance in 1997–98 was \$1.49b. The level of rent assistance payable varies with the amount of rent paid, marital status and number of children in the family. For example, in June 1999, for a couple with one or two children who paid over \$260 a fortnight in rent, the maximum fortnightly rent assistance was \$89.

As with public housing renters, a large proportion of rent assistance recipients are either lone persons or lone parents. In December 1998, 57% of those receiving rent assistance from the Department of Family and Community Services were people living alone, or in shared accommodation, and 21% were lone parent families.

Under the CSHA, the State and Territory Governments also assist low income earners with the costs of rent, bonds and relocation in the private rental market. In 1996–97, almost \$60m was provided through these arrangements.

## Crisis accommodation

Governments provide assistance in meeting the short-term accommodation needs of homeless people. The Commonwealth Government provides capital funding for crisis accommodation through the Crisis Accommodation Program (\$40m in both 1997–98 and 1998–99) under the CSHA. The Commonwealth Government and the State and Territory Governments also provide assistance to people who are homeless or at imminent risk of homelessness, through the Supported Accommodation Assistance Program (SAAP).

National funding for SAAP will be \$650m over the next five years to 2003–04 (see also *Chapter 7, Income and welfare*). Funds are provided to community organisations and local governments for services such as refugees, shelters and halfway houses, and also for referral, counselling and

advocacy services. About 1,300 service outlets are funded under SAAP.

The AIHW estimates that at least 110,260 persons were provided with support or supported accommodation through SAAP in 1997–98. These persons had a total of 156,589 support periods over that time. Clients between 15 and 19 years of age were the single largest age grouping, accounting for one-fifth of all clients. Those aged between 20 and 24 years constituted 16% of all clients. Indigenous Australians constituted 12% of SAAP clients and people from non-English speaking backgrounds constituted 10%.

In relation to the housing circumstances of clients prior to their use of services, the largest proportion of support periods (36%) was for clients who were living in the private rental market. A further 21% of support periods were for clients who had been staying at SAAP or Crisis Accommodation Program (CAP) funded accommodation. Some 13% of support periods were for clients who had no shelter at all or had been living in a car, tent or squat prior to seeking assistance.

## Housing assistance programs for Indigenous peoples

The Aboriginal and Torres Strait Islander Commission (ATSIC) administers a number of programs to improve the housing of Aboriginal and Torres Strait Islander peoples, with the aim of improving community and individual health and wellbeing.

Results of the 1996 Census suggests that Aboriginal and Torres Strait Islander peoples are disadvantaged in terms of housing need. It was estimated that there is a national shortfall of almost 39,000 bedrooms to adequately house Indigenous families. During 1998–99, ATSIC engaged the ABS to undertake a national survey of all Indigenous communities and housing organisations. The results from the Community Housing and Infrastructure Needs Survey (CHINS) are expected to be available in March 2000.

ATSIC's Community Housing and Infrastructure Program (CHIP) provides funds for the construction, purchase, repairs and management of community housing as well as for the provision and maintenance of housing related infrastructure (essential services such as water, roads, sewerage and electricity). ATSIC also provides State water and power grants to supplement State Governments' efforts in the



provision of essential and municipal services to disadvantaged rural and remote communities. In 1998–99, CHIP expenditure totalled \$232m. Of this amount, \$102m was spent on large-scale projects targeting priority housing, power, water and waste removal, mainly in rural and remote Indigenous communities.

The Aboriginal Rental Housing Program is a program specified under the CSHA and is administered by the Department of Family and Community Services (FaCS). Funding for the program for 1998–99 was \$91m.

ATSIC's Home Ownership scheme is designed to reduce the disparity between the rate of home ownership in Indigenous communities and that in the wider Australian community. The rate of home ownership for Aboriginal family and lone-person households was estimated in the 1996 Census to be 31%. This compared with a national non-Indigenous figure of 71%. The scheme provides home loans at concessional interest rates to Aboriginal and Torres Strait Islander families. It targets low-income families with the capacity to repay a long-term loan, but who have difficulty obtaining finance from traditional lending institutions. A total of 493 loans were made in 1998–99, with the total loan portfolio administered by ATSIC now at \$272m.

The Commonwealth Government, through FaCS and ATSIC, has been negotiating bilateral housing agreements with State and Territory Governments to maximise program efficiency and effectiveness and to better coordinate the two Indigenous-specific housing programs, CHIP and the Aboriginal Rental Housing Program. At 30 June 1999, agreements had been signed with the Northern Territory, Western Australia, New South Wales and South Australia.

A Commonwealth State Working Group on Indigenous Housing (CSWGIH), was set up by Commonwealth and State Housing Ministers in 1997 to develop practical strategies to address impediments to improved housing outcomes for Aboriginal and Torres Strait Islander people. The working group has provided a forum for greater cooperation and information sharing between State and Territory housing agencies, FaCS and ATSIC. Working parties were established with representation from across Commonwealth, State and Territory agencies, to specifically focus on the issues of performance indicators, data collections, housing management, training and sustainable healthy housing. The working parties have developed a number of initiatives, including a national approach to data collections through a

National Indigenous Housing Data Management Strategy and a national framework for the design, building and management of Indigenous housing in remote and rural areas.

## Other programs

The Commonwealth Government, through the Department of Health and Aged Care, finances and regulates residential care for frail older people. The residential care is usually provided by the non-government sector, including religious, charitable and private sector providers. A small number of residential services are operated by the State and local government sectors. The Commonwealth provides capital and recurrent funding for the construction, upgrading and operational costs of the two main types of long-term residential aged care facilities, namely nursing homes and hostels (see the section *Residential Aged Care Program* in *Chapter 7, Income and welfare*).

Under the Commonwealth/State Disability Agreement, the Commonwealth provides funding to the States and Territories for the provision of accommodation services for people with disabilities, while State and Territory Governments are responsible for administering these services (see the section *People with a disability* in *Chapter 7, Income and welfare*).

The Commonwealth also funds the AIHW. The Institute's role is to gather, analyse and disseminate national data on health and welfare services, including housing assistance, in order to support planning and policy making in government and community organisations. In the 1999, the Institute will publish *Australia's Welfare 1999: Services and Assistance*, which contains chapters on housing assistance and services for homeless people. Included in these chapters is information examining the need for assistance, government expenditure on services and assistance, the characteristics of recipients of assistance, and outcomes. The Institute will also publish *Housing Assistance in Australia*, a report describing the range of assistance provided to households in Australia, which is due to be released in December 1999.

The Institute undertakes data development for the performance reporting required by the six program areas of the Commonwealth State Housing Agreement and for the Indigenous managed community housing sector. The six program areas of the CSHA are Public Housing, Community Housing, Aboriginal Rental Housing,

Crisis Accommodation, Private Rental Assistance, and Home Purchase Assistance.

In 1999 the first national data collection of the community housing sector was undertaken by the Institute as part of the National Community Housing Forum's mapping project. The collection provided data on 34,200 households, occupying 30,800 dwellings managed by 944 organisations. Of the 30,800 dwellings, 56% were CSHA funded. The collection identified that organisations provided community housing to 5,649 households containing people with a disability, to 3,605 households with persons from a non-English speaking background and to 864 households with Indigenous tenants. Nearly one-quarter of all dwellings had been specifically modified for use for people with disabilities or the frail aged.

In 1998–99 the Institute was given the responsibility for developing the National Indigenous Housing Data Management Strategy. The Institute will work with the ABS and agencies responsible for housing assistance at Commonwealth and State/Territory levels to establish a framework to improve how outcomes for Indigenous housing are measured. Indigenous housing data development will continue through the construction of a national minimum data set as part of the National Indigenous Housing Data Management Strategy.

Work will continue during 1999–2000 to put into place a mechanism for determining and agreeing on a nationally consistent core set of data items that will satisfy the accountability requirements of governments and address the existing information deficit. A data manual will be produced for collecting performance indicator data for 1998–99 for Indigenous managed community housing assistance.

A housing authority also exists in each State and Territory, which is responsible for the provision of public rental housing and often other housing related services such as home loans. These authorities are:

- New South Wales—Department of Housing;
- Victoria—Department of Human Services;
- Queensland—Department of Housing;
- South Australia—South Australian Housing Trust;
- Western Australia—Homeswest;
- Tasmania—Department of Health and Human Services;
- Northern Territory—Department of Housing; and
- Australian Capital Territory—ACT Housing.

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*Housing Finance for Owner Occupation, Australia* (5609.0).

*Housing Occupancy and Costs, Australia* (4130.0).

*Income Distribution, Australia* (6523.0).

### Other publications

Australian Institute of Health and Welfare 1999, *Australia's Welfare 1999: Services and Assistance*, AIHW, Canberra. Forthcoming.

Australian Institute of Health and Welfare 1999, *Community Housing Mapping Project: Report Prepared for the National Community Housing Forum*, AIHW, Canberra. Forthcoming.

Australian Institute of Health and Welfare 1999, *SAAP National Data Collection Annual Report 1997–98, Australia*, AIHW, Canberra.

Department of Family and Community Services 1998, *Annual Report 1997–98*, AGPS, Canberra.

The latest annual reports of the State and Territory Government housing authorities, and the latest annual report of the Department of Family and Community Service's *Housing Assistance Act 1996* show further details of government activities in the field of housing.

### Internet sites

For further information about housing programs see the following sites:

Aboriginal and Torres Strait Islander Commission, <http://www.atsic.gov.au>

Australian Institute of Health and Welfare, <http://www.aihw.gov.au>

Commonwealth Department of Family and Community Services, <http://www.facs.gov.au>

Commonwealth Department of Health and Aged Care, <http://www.health.gov.au>

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## Introduction

This chapter provides information on various aspects of the health of the Australian population and the activities of government and other bodies relating to health. The chapter uses data from the most up-to-date sources available, including data from the 1995 National Health Survey. Results for Indigenous people from the survey are provided in this chapter only for non-remote areas, because of concerns about the quality of the data for remote areas.

The Australian health care system comprises a diversity of arrangements for planning, funding and delivering health services which feature a mix of private and public sector involvement.

At the national level, health services in Australia are administered by the Commonwealth Government, through two ministers appointed to the portfolio of Health and Aged Care. The Minister for Health and Aged Care has overall responsibility for the whole portfolio and has specific responsibility for Medicare benefits, hospitals, private health insurance, medical workforce issues, public health, health research, Aboriginal and Torres Strait Islander health issues and the Health Insurance Commission (HIC).

The Minister is assisted by a Parliamentary Secretary who has specific responsibility for the Therapeutic Goods Administration (TGA), the Australia New Zealand Food Authority (ANZFA), pharmaceutical benefits, Health Services Australia Limited, administrative aspects of the Pharmaceutical Benefits Scheme, and general support for Aboriginal health in Northern Australia. The Minister for Aged Care is responsible for aged care services and Australian Hearing Services.

The Minister for Veterans' Affairs also administers health services for ex-service personnel and their dependants.

The State and Territory Governments are heavily involved in the public provision of health services, including public and psychiatric hospitals, public health and mental health. Each has a minister who is responsible to the Government of the particular State or Territory for the administration of its health authorities. In

some States/Territories, the responsibility for health services is shared by several authorities, while in others one authority is responsible for all these functions.

Local governments and private, non-government organisations (both non-profit and for profit) also provide health services. Most medical and dental care, and some other professional medical and allied health services such as physiotherapy, are provided by private, non-salaried practitioners.

Under the National Health Information Agreement (NHIA), to which the Australian Bureau of Statistics, the Australian Institute of Health and Welfare, the Commonwealth Department of Health and Aged Care, and the various State and Territory health authorities are signatories, the National Health Information Development Plan sets out agreed national priorities for health information to be considered by the Australian Health Ministers' Advisory Council (AHMAC). This work is managed by the National Health Information Management Group (NHIMG).

As well, a National Public Health Partnership (NPHP) has been established, from 1996, between the Commonwealth and State and Territory Governments in recognition of the need for a national approach to public health and health promotion to improve the health status of Australians, in particular the population groups most at risk.

## Health status

The World Health Organization (WHO) defines health as "a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity". While the level of disease or infirmity can be assessed by mortality, disability and morbidity statistics, the presence of positive wellbeing is more difficult to measure. Multidimensional instruments which address physical, mental and social functioning continue to be developed and are increasingly being used to measure health and wellbeing in individuals and populations.

The following health status information includes morbidity and mortality data; disability-related topics are contained in *Chapter 7, Income and welfare*.

## Health and wellbeing

In the most recent National Health Survey (in respect of 1995) conducted by the ABS, a large majority (84%) of the population aged 15 years or more considered themselves to be in good health, rating their health status as good, very good or excellent (table 9.1). These ratings were similar among males and females, but were age-related, increasing age being associated with poorer self-assessed health status.

In comparison a smaller majority (73%) of Indigenous people aged 15 years and over in non-remote areas reported their health to be good, very good or excellent at the time of the survey, with the rest reporting their health as fair or poor. Indigenous people were less likely to report good, very good or excellent health than their non-Indigenous counterparts in almost every age group. After adjusting for age, Indigenous people were about twice as likely as non-Indigenous people to report poor or fair health.

Health status was strongly related to illness conditions. Of the population reporting no medical condition, 34% assessed their health as excellent and 3% rated their health as fair or poor; of the population reporting one or more medical conditions, only 18% assessed their health as excellent and 18% rated their health as fair or poor.

Overall, 88% of the population had at least one recent or long-term illness or injury, with 45% having four or more medical conditions. Both self-assessed health status and number of conditions varied among groups within the population. As measured by these indicators of health status, people in low income households, those not in the labour force and longer term migrants rated worse than other population groups.

### 9.1 INDICATORS OF HEALTH STATUS(a)—1995

	Self-assessed health status(b)		Number of conditions(c)		
	Good or better	Fair or poor	None or one	Two or three	Four or more
Population characteristics	%	%	%	%	%
Labour force status					
Employed	90.9	9.1	23.0	32.2	44.8
Unemployed	81.5	18.5	28.4	30.6	40.9
Not in labour force(d)	72.0	28.0	30.2	24.5	45.3
Equivalent income(e)					
Low	72.9	27.1	25.9	24.8	49.3
Medium	83.9	16.1	28.8	28.2	43.0
High	91.6	8.4	24.9	31.6	43.6
Birthplace					
Australia	84.4	15.6	27.9	28.7	43.4
Overseas					
Arrived in last five years	91.4	8.6	47.1	28.4	24.4
Arrived five years or more ago	80.0	20.0	20.8	26.3	52.9
Language at home(f)					
English	84.1	15.9	23.0	28.2	48.8
Other than English	76.2	23.8	36.4	25.5	38.1
All persons	<b>83.5</b>	<b>16.6</b>	<b>26.9</b>	<b>28.2</b>	<b>44.9</b>

(a) Age and sex standardised. (b) Respondents aged 15 years or more. (c) Recent and/or long-term conditions combined.

(d) Includes children and retired persons. (e) Based on Henderson Equivalence Scale. Excludes persons for whom equivalent income could not be derived. (f) Persons aged six years or more.

Source: Unpublished data, 1995 National Health Survey.

## Mortality

In 1997, there were 129,350 deaths registered, comprising 67,752 male and 61,598 female deaths. This was an increase of only 0.5% on the total deaths registered in 1996.

The ABS has introduced an automated system for coding causes of death. As the system was developed in the United States, it uses the US interpretation of the International Classification of Diseases Version 9 (ICD-9) coding rules. That interpretation, in some instances, differs significantly from the interpretation of the rules previously used in Australia.

As for 1996, cancer (27% of all deaths) and ischaemic heart disease (22% of all deaths) were the leading causes of death in 1997 (table 9.2). Based on the new interpretation of the coding rules, pneumonia and influenza became the fifth leading cause of death in 1997, and disease of the arteries, arterioles and capillaries caused more deaths than did diabetes. Senile and presenile organic psychotic conditions were no longer among the ten leading causes.

### 9.2 LEADING CAUSES OF DEATH—1997

	Males	Females	Persons	Proportion of total deaths
Nutrients	no.	no.	no.	%
<b>All causes</b>	<b>67 752</b>	<b>61 598</b>	<b>129 350</b>	<b>100.0</b>
Malignant neoplasms (cancer)	19 279	15 037	34 316	26.5
Malignant neoplasms of trachea, bronchus and lung	4 605	2 058	6 663	5.2
Ischaemic heart disease	15 565	13 486	29 051	22.5
Cerebrovascular disease (stroke)	4 879	7 254	12 133	9.4
Chronic obstructive pulmonary disease and allied conditions	3 830	2 627	6 457	5.0
Pneumonia and influenza	2 151	2 866	5 017	3.9
Accidents	2 935	1 617	4 552	3.5
Motor vehicle traffic accidents	1 240	561	1 801	1.4
Diseases of arteries, arterioles and capillaries	1 538	1 395	2 933	2.3
Diabetes mellitus	1 425	1 420	2 845	2.2
Suicide	2 146	577	2 723	2.1
Hereditary and degenerative diseases of the central nervous system	896	1 112	2 008	1.6
All other causes	13 108	14 207	27 315	21.1

Source: *Causes of Death, Australia, 1997* (3303.0).

## Suicide

The number of deaths in Australia attributed to suicide rose from 2,197 in 1988 to 2,723 in 1997, an increase of 24% over the 10 year period (table 9.3). In 1988, suicide accounted for about 12.8% of all deaths and ranked as the sixth leading cause of all deaths. In 1997, suicide ranked as the seventh leading cause of all deaths, but it ranked fourth in terms of the years of potential life lost before the age of 76 years.

Suicides, for statistical purposes, are defined as those deaths classified to 'suicide and self-inflicted injuries' by the Supplementary

Classification of the Ninth Revision of the International Classification of Diseases. The actual number of suicides is thought to be higher than the number of registered suicides, because the true intention of some deaths is difficult to determine. When there is a doubt about the intention of death, suicides could be misclassified to other cause of death categories (i.e. natural cause, accident or undetermined whether accidentally or intentionally inflicted). The coroners may be reluctant to give a verdict of suicide because of the social stigma attached to suicides and the socioeconomic and emotional implications it could have on families of the victims. The extent of under-reporting of suicide is, however, difficult to assess accurately.



## 9.3 DEATHS BY SUICIDE IN AUSTRALIA—1988–97

Year	Suicides			Age-standardised death rate per 100,000 population(a)			Sex ratio (male death rate/female death rate)
	Males	Females	Total	Males	Females	Persons	
	no.	no.	no.	rate	rate	rate	ratio
1988	1 730	467	2 197	21.5	5.6	13.4	3.8
1989	1 658	438	2 096	20.1	5.2	12.5	3.6
1990	1 735	426	2 161	20.7	4.9	12.7	4.0
1991	1 847	513	2 360	21.7	5.9	13.7	4.4
1992	1 820	474	2 294	21.1	5.3	13.1	3.6
1993	1 687	394	2 081	19.3	4.3	11.7	3.6
1994	1 830	428	2 258	20.7	4.7	12.6	4.8
1995	1 873	495	2 368	20.9	5.4	13.0	4.4
1996	1 931	462	2 393	21.3	4.9	13.0	3.9
1997	2 146	577	2 723	23.4	6.1	14.6	3.8

(a) Standardised death rates enable a comparison of death rates between populations with different age structures by relating them to a standard population, in this case all persons in the 1991 Australian population. They are expressed per 100,000 persons.

Source: Mortality data file.

The age-standardised death rate for suicide rose from 13.4 deaths per 100,000 population in 1988 to 14.6 per 100,000 population in 1997, a 9% increase over the 10-year period. Between 1988 and 1996 the overall suicide death rate was relatively stable at 12 to 13 deaths per 100,000 population, but it then increased by 12% to 14.6 in 1997.

The trend in the overall death rate from suicide reflects the underlying trend in male suicide deaths, which generally account for over three-quarters of the total number of suicides each year.

### Trends by age

The suicide death rate varied by age (table 9.4). Although age-specific suicide rates fluctuated from year to year, a strong age-related pattern can be identified for men. Suicide death rates commenced at a peak in young adulthood, followed by a decline, with a second peak registering at older ages. From the early 1990s, the suicide death rate for younger adult males has been higher than the second peak, which occurred for men aged 65 years and over. By comparison, women aged 65 years and over have a lower suicide death rate than women in any other age group.

The overall suicide rates were relatively stable from 1988 until 1996, followed by a peak in 1997. For both males and females, there was an increase in the suicide rate among adolescents and young adults, but a fall in the suicide rate for people aged 55 years and over. In 1997, the suicide rate in each of the age groups under 45 was the highest during the 10-year period for both males and females.

The shift in suicide death rates from older to younger age groups has considerable implications for public health policy, as currently more than 50% of all suicides occur among people under 35 years of age, and this proportion is rising steadily. Although evident in both sexes, the rise in the suicide death rate among younger males was more marked than among females.

### Pattern by gender

The suicide death rate among females was considerably lower than for males. Throughout the reference period, the death rate from suicide for males was 4 to 5 times the rate for females (table 9.4). This pattern was observed in every age group. Although the completed suicide rate is lower for females, suicide attempts are more common among females than males. Much of the difference in the death rate is attributed to the relative effectiveness of the methods of suicide employed by males and females.

**9.4 AGE-SPECIFIC SUICIDE RATES PER 100,000 POPULATION(a), By Sex—1988–97**

	Age group (years)						All ages(b)
	15-24	25-34	35-44	45-54	55-64	65+	
	rate	rate	rate	rate	rate	rate	
MALES							
1988	27.9	28.3	26.0	24.4	23.8	31.9	21.0
1989	23.9	30.0	22.4	23.9	22.8	29.5	19.8
1990	27.0	29.1	25.4	21.4	24.8	28.2	20.4
1991	26.7	29.9	30.3	26.1	21.3	28.1	21.4
1992	27.0	30.4	24.9	25.8	23.1	28.4	20.9
1993	24.7	28.7	21.4	23.5	22.9	25.8	19.2
1994	27.0	29.2	26.1	24.7	23.1	26.6	20.6
1995	25.4	33.4	27.8	23.9	23.3	22.9	20.8
1996	25.7	32.5	29.4	22.7	23.4	25.9	21.2
1997	30.6	37.5	30.2	24.4	22.6	28.3	23.3
FEMALES							
1988	4.5	7.1	7.5	8.2	8.7	1.1	5.6
1989	3.4	6.9	6.7	7.1	8.5	1.1	5.2
1990	4.4	7.0	5.9	6.8	6.2	1.0	5.0
1991	6.3	7.4	7.4	7.8	10.0	0.9	5.9
1992	5.7	7.1	7.2	6.4	7.1	1.0	5.4
1993	4.1	5.5	6.0	7.1	5.0	0.8	4.4
1994	4.3	6.0	7.3	6.5	6.3	0.8	4.8
1995	6.4	7.0	7.5	8.1	6.6	0.8	5.5
1996	4.3	6.7	7.8	7.7	5.2	0.7	5.0
1997	7.1	8.0	8.5	8.2	7.2	0.9	6.2
PERSONS							
1988	16.4	17.8	16.9	16.6	16.3	18.4	13.3
1989	13.8	18.5	14.6	15.7	15.7	17.5	12.5
1990	15.9	18.1	15.7	14.3	15.5	16.7	12.7
1991	16.7	18.7	18.9	17.2	15.7	16.2	13.7
1992	16.5	18.7	16.1	16.3	15.1	16.5	13.1
1993	14.6	17.1	13.7	15.4	14.0	14.6	11.8
1994	15.9	17.6	16.7	15.8	14.7	14.8	12.6
1995	16.1	20.2	17.6	16.1	15.0	13.2	13.1
1996	15.2	19.6	18.6	15.3	14.4	14.2	13.1
1997	19.1	22.8	19.3	16.4	14.9	16.3	14.7

(a) Of the relevant age group. (b) Including 10–14 year olds.

Source: Mortality data file.

**Methods of suicide**

In 1988, firearms were the most frequently reported method of suicide, accounting for nearly a quarter of all suicides (table 9.5) closely followed by hanging and strangulation.

Poisoning by other gases and vapours (mainly carbon monoxide poisoning by car fumes), and poisoning by solid or liquid substances, each accounted for slightly less than one-fifth of all suicides. The method of suicide changed substantially during the 10-year period. The proportion of suicides due to firearms declined

sharply, while that from hanging and strangulation increased. As a result, in 1997 the latter emerged as the most commonly reported method of suicide, accounting for over one-third of all suicides. The proportion of suicides by carbon monoxide poisoning also increased and accounted for almost one-quarter of all suicides, while poisoning by solid and liquid substances, and use of firearms, had both declined relatively, each accounting for approximately 12% of all suicides in 1997.

The method of suicide varied by sex. Males employed more violent and effective methods such as firearms and hanging. For females, in 1988 the most common method reported was poisoning by solid and liquid substances. In 1997, however, females had shown a tendency to greater use of methods such as hanging and carbon monoxide poisoning. The decrease in

the proportion of suicide deaths among females due to poisoning by solid and liquid substances (from 40% to 27%) may be partly attributed to increased safety of prescription medications, and their restricted availability, together with improved resuscitation and life-saving techniques, rather than a substantial decline in suicide attempts using this method.

#### 9.5 LEADING METHODS OF SUICIDE, By Sex—1988 and 1997

	1988			1997		
	Males	Females	Persons	Males	Females	Persons
	%	%	%	%	%	%
Poisoning by solid and liquid substances	12.2	40.0	18.1	8.9	27.2	12.7
Other gases and vapours (carbon monoxide)	20.7	14.5	19.4	24.2	18.7	23.1
Hanging and strangulation	24.5	19.5	23.4	37.8	30.3	36.2
Firearms and explosives	28.3	6.9	23.7	14.4	3.6	12.2
Other unspecified methods	5.6	6.2	5.7	6.6	6.8	6.6
Other methods	8.7	12.9	9.7	8.1	13.4	9.2
All methods	100.0	100.0	100.0	100.0	100.0	100.0
	no.	no.	no.	no.	no.	no.
Total suicides	1 730	467	2 197	2 146	577	2 723

Source: Mortality data file.

## Morbidity

The 1995 National Health Survey found that almost 70% of the population experienced some type of illness condition shortly before the survey. The most common (experienced by 22% of the population) were respiratory conditions, such as asthma, common cold and influenza. Other common recent illnesses experienced were headaches (13%), hypertension (8%), injuries (6%) and dental problems and arthritis (both 5%).

Similarly the most common conditions experienced by Indigenous people in non-remote areas were diseases of the respiratory system (by 37%). Among specific conditions, asthma was

more commonly experienced by Indigenous people than by non-Indigenous people in every age group. Asthma was the most common condition of Indigenous children aged less than five years (17%) and 5–14 years (23%), and of young adults aged 15–24 years (20%).

Three-quarters of the total population experienced one or more long-term conditions, i.e. conditions expected to last or that had lasted for six months or more. The prevalence of long-term conditions increased with age, from 43% of children aged less than 15 years to 99% of people aged 65 years or over. The types of conditions experienced also varied with age. The 10 most common long-term conditions for selected age groups are described in table 9.6.

### 9.6 MOST PREVALENT ILLNESS CONDITIONS, By Age—1995

Condition	%
<b>LESS THAN 15 YEARS</b>	
Asthma	37.1
Hayfever	14.9
Allergy	12.3
Sinusitis	8.1
Eczema/dermatitis	8.0
Far sighted	7.8
Short sighted	7.1
Bronchitis/emphysema	5.9
Otitis media and other illness of the ear and mastoid	5.8
Other respiratory	5.6
<b>15–34 YEARS</b>	
Short sighted	26.9
Hayfever	26.0
Asthma	17.3
Sinusitis	15.2
Far sighted	11.7
Allergy	9.3
Other musculoskeletal	8.2
Astigmatism	5.8
Deafness	5.6
Arthritis	5.3
<b>35–64 YEARS</b>	
Far sighted	37.9
Short sighted	32.0
Arthritis	23.4
Hayfever	16.8
Hypertension	15.4
Sinusitis	14.8
Deafness	14.0
High cholesterol	9.7
Varicose veins	9.4
Asthma	9.3
<b>65 YEARS AND OVER</b>	
Arthritis	49.8
Far sighted	45.8
Hypertension	38.5
Presbyopia	35.8
Short sighted	30.8
Deafness	30.0
Varicose veins	12.9
Heart disease	12.7
Hayfever	11.5
High cholesterol/cataracts	11.4

Source: Unpublished data, 1995 National Health Survey.

## National Health Priority Areas

Based on current international comparisons, the health of Australians is among the best in the world. Continued improvement is likely to be effected by concerted efforts across the nation.

The National Health Priority Areas (NHPA) initiative emphasises collaborative action between Commonwealth and State/Territory Governments, the National Health and Medical Research Council (NHMRC), the Australian Institute of Health and Welfare (AIHW), non-government organisations, appropriate experts, clinicians and consumers.

It recognises that specific strategies for reducing the burden of illness should be holistic, encompassing the continuum of care from prevention through treatment and management to rehabilitation, and should be underpinned by evidence based on appropriate research.

Priorities are established through national consultation taking into account:

- the importance of the disease to the community;
- the impact of the disease (including morbidity, mortality, potential years of life lost, costs to the individual and the community, and consequent inequities such as socioeconomic disadvantage);
- the achievability of improved outcomes; and
- the feasibility of measuring the impact of activities.

At present, six priority areas have been endorsed by Australian Health Ministers. These are: cardiovascular health, cancer control, injury prevention and control, mental health, diabetes mellitus, and asthma. A set of indicators has been developed to assist monitoring of these priority areas. A range of program initiatives has also been established, aimed at improving health outcomes.

Asthma became the sixth priority area in August 1999, in recognition of the significant burden that asthma places on society in terms of health, social, economic and emotional costs.

The prevalence of asthma has increased in recent years, and there are signs that asthma is becoming more severe. More than two million (11%) of Australians have asthma, including:

- one in four primary school children;
- one in seven teenagers; and
- one in ten adults.

## Cardiovascular health

The high prevalence of cardiovascular disease (CVD) is a major health concern for both health authorities and the general population. It is the leading cause of death in Australia and results in a considerable burden, in terms of illness, disability and economic costs. Although mortality due to CVD is declining due to advances in prevention and treatment, the risk of developing CVD continues to be a concern due to the significant prevalence of modifiable risk factors such as cigarette smoking, high blood pressure, high blood cholesterol levels, obesity and limited physical activity.

In 1997, 41% of all deaths (52,641 deaths) were due to diseases of the circulatory system. Ischaemic heart disease accounted for 23% of all deaths, with cerebrovascular diseases accounting for a further 9%. Between 1981 and 1995, age-standardised death rates for CVD declined by 37%. Over this time period, male CVD death rates decreased from 521 to 314 deaths per 100,000, while female CVD death rates decreased at a slower rate, from 306 to 201 deaths per 100,000.

National statistics on deaths of Indigenous people are not available because of incomplete recording of Indigenous status in the death records of some jurisdictions. However, as of 1997, Western Australia, South Australia and the Northern Territory were deemed to have adequate identification of Indigenous people to allow for reporting death statistics.

In 1997, the leading cause of death among the Indigenous population in these three States was diseases of the circulatory system, which were responsible for 31% of all Indigenous deaths. Heart disease was responsible for 74% of the Indigenous circulatory disease deaths, while cerebrovascular disease (stroke) was responsible for 22%. The median age of Indigenous deaths from circulatory diseases was 59.6 years, compared to 81.1 years for the total population.

The prevalence of cardiovascular disease in the adult Australian population increased from 17% (2.2 million) in 1989–90 to 21% (2.8 million) in 1995 (table 9.7). Age and sex standardisation of the data indicated that, over this period, the ageing of the Australian population played only a small part in the increase in prevalence of CVD.

Leading cardiovascular conditions in 1995 were hypertension, which was reported by 14% of the adult population, followed by heart disease (4%). Age-specific prevalence rates for cardiovascular conditions increased from 4% for the 18–24 year age group to 61% for the 75 years and over age group. Hypertension, which is also a risk factor for other CVD, was the cardiovascular condition most strongly correlated with age.

Hypertension was also reported by significant proportions of Indigenous adults in non-remote areas, rising from 12% of those aged 25–44 years to 33% of those aged 45–54 years and 32% of those 55 years and over. Among non-Indigenous adults in the same age groups, hypertension was reported by 4%, 14% and 36% respectively.

### 9.7 INCIDENCE OF CARDIOVASCULAR CONDITIONS, Persons Aged 18 Years and Over

Type of condition	1989–90		1995	
	'000	%	'000	%
Hypertension	1 535.1	12.3	1 932.5	14.4
Heart disease	440.1	3.5	493.5	3.7
Atherosclerosis	45.7	0.4	25.5	0.2
Stroke (and other cerebrovascular disease)	89.6	0.7	115.7	0.9
Other diseases of the circulatory system	274.8	2.2	694.8	5.2
Ill-defined signs and symptoms of heart conditions	256.2	2.1	337.5	2.5
<b>Total cardiovascular conditions(a)</b>	<b>2 164.7</b>	<b>17.4</b>	<b>2 795.5</b>	<b>20.9</b>

(a) Each person may have reported more than one type of condition, and therefore components may not add to totals.

Source: National Health Survey: Cardiovascular and Related Conditions, Australia, 1995 (4372.0).

## Cancer control

Primary cancers can develop from many different parts of the body, and each cancer has its own pattern of growth and spread. Different cancers may be associated with risk factors, some of which are modifiable (e.g. smoking), while others are unavoidable (genetic inheritance). The concept of cancer control recognises that while it may not be possible to eradicate cancer altogether, its impact and burden on the community can be reduced. The risk of death due to cancers can be avoided through close monitoring of individuals at high risk, reduction of known risk factors, and the detection and treatment of cancers early in their development. Eight cancers have been targeted in this priority area—lung cancer, melanoma, non-melanocytic skin cancer, colorectal cancer, non-Hodgkin's lymphoma, prostate cancer in males, and cancer of the cervix and breast in females.

The National Cancer Statistics Clearing House of AIHW reports that each year in Australia nearly 80,000 new cases of cancer are diagnosed. This equates to an average risk of one in three men and one in four women being directly affected by cancer in their lifetime. This statistic excludes the approximately 270,000 annual diagnoses of non-melanocytic skin cancer, which is the most common form of cancer in Australia, but for which data are not collected routinely by cancer registries.

The mortality due to cancer has remained stable over the last ten years, with increases in the incidence of some cancers, such as prostate cancer, being largely due to increased testing for the condition. The five-year survival rate for all cancers is approximately 50%, which should discount any perception that a cancer diagnosis is tantamount to a death sentence.

In 1997, 27% of all deaths (34,316 deaths) were due to cancer. Overall, cancer of the trachea, bronchus and lung was the leading cause of cancer deaths, accounting for 19% of all deaths from cancer. Among males, leading causes were cancer of the trachea, bronchus and lung (24% of all male cancer deaths) followed by prostate cancer (13%) and colon cancer (10%). Among females, leading

causes were breast cancer (17% of all female cancer deaths) followed by cancer of the trachea, bronchus and lung (14%) and colon cancer (11%). Age-specific death rates for cancer showed a marked increase with age and were greater for males than females for most age groups, the exceptions being the 25–44 and the 45–54 years age groups, due to the contribution of cancers of the female reproductive system.

Information relating to cigarette smoking and alcohol intake, which are modifiable risk factors for some cancers, is contained in the section *Health lifestyles and risk factors*. However, it should be stressed that cigarette smoking remains the most significant preventable cause of lung cancer and may contribute to the incidence of many other cancer types. Diet is also a significant risk factor for some cancers, notably colorectal, breast and stomach cancers. Sun exposure is another modifiable risk factor that is addressed in ABS National Health Surveys. Australians are at high risk of skin cancer. Exposure to sunlight is strongly associated with the risk of contracting skin cancers, and therefore sun protection is an important preventive measure.

## Cancer screening

National breast and cervical cancer screening programs were established during the early 1990s to improve reliability and accessibility of services and to reduce morbidity and mortality arising from these cancers. Free access to breast screening services is provided for women aged 50–69 years; cervical screening is supported through Medicare. These programs are cost-shared between the Commonwealth Government and State and Territory Governments.

In both screening programs, all States and Territories are contributing to the collection and analysis of agreed national minimum datasets to assist revision of policy, monitor program performance and aid the development of targeted strategies. As part of the national monitoring process, ABS National Health Surveys obtain information about breast and cervical screening from women aged 18 years and over.

## Detection of skin, breast and cervical cancers

Cancer (malignant neoplasm) is a major cause of morbidity and mortality. It impacts on life expectancy and quality of life, and places high demands on preventive, treatment, support and palliative care services. Melanoma, skin cancer, cancer of the cervix and cancer of the breast in females are four of the eight cancers that have been targeted in the National Health Priority Area of Cancer Control; the other four cancers are lung cancer, colo-rectal cancer, non-Hodgkin's lymphoma, and prostate cancer in males.

Modification of risk factors and early detection are important aspects of cancer control. Exposure to sunlight is strongly associated with the risk of contracting skin cancers, and therefore sun protection is an important preventive measure. Regular checking of the skin for changes in freckles and moles can assist in the early detection of skin cancers. For women, a mammogram is considered to be the most effective method currently available for the detection of breast cancer, particularly in its early stages. Other actions to detect breast cancer include regular breast examinations. The current National Women's Health Policy recommends that all women, including those who have no symptoms or history suggestive of cervical pathology, should have a routine Pap smear test at least every two years to assist in the detection of cervical cancer.

Recent analyses of 1995 National Health Survey data have revealed the following information

about the steps taken by people to protect themselves against skin cancers, and the actions they have taken to help in the detection of skin, breast and cervical cancers.

### Examination of the skin

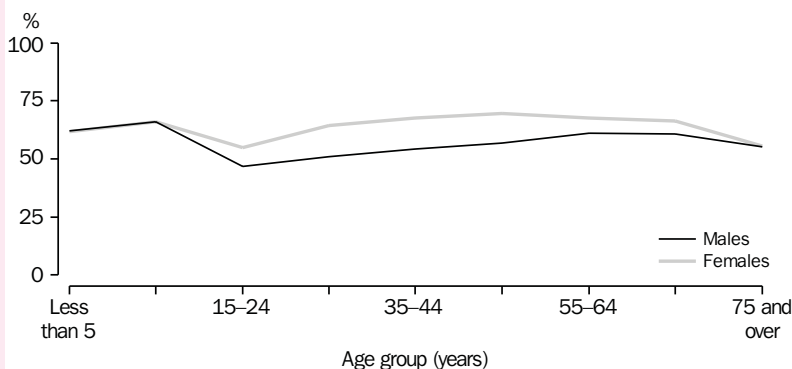
In 1995, 60% of people indicated that their skin was checked regularly for changes in freckles and moles, either by themselves or someone else. Proportionally more females (64%) than males (56%) reported regular skin checks. In children aged less than 5 years and 5–14 years, and in older people aged 75 years and over, the proportions of males and females having regular skin checks were similar within each age group. In other age groups, females were generally more likely than males to have regular skin checks (graph 9.8).

### Sun protection measures taken

The 1995 National Health Survey found that, in the month prior to interview, 82% of people took measures to protect themselves from the sun, 15% did not take measures and 3% were not exposed to the sun. In most age groups, males were more likely than females not to take sun protection measures. The highest proportions of people who did not protect themselves from the sun were among males aged 55–64 years and 65–74 years (19% of both groups).

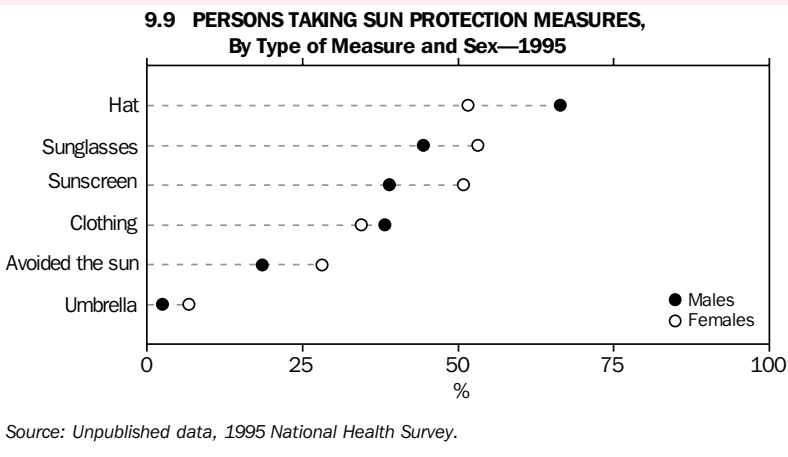
The most common type of sun protection was wearing a hat (59% of people). Sunglasses (49%), sunscreen (45%) and clothing for the purpose of sun protection (36%) were also commonly used. More than 23% of people said that they avoided the sun in the month prior to the survey.

**9.8 PERSONS HAVING REGULAR SKIN CHECKS, By Age and Sex—1995**



Source: Unpublished data, 1995 National Health Survey.





For males, the most frequent sun protection measure was wearing a hat; for females it was sunglasses (graph 9.9). Males were more likely than females to choose a hat or clothing for the purpose of sun protection. Females were more likely to either avoid the sun or to select sunglasses, sunscreen or an umbrella to protect themselves from the sun.

### Breast cancer and cervical cancer

Responses to the Women's Health Questionnaire, part of the 1995 National Health Survey, revealed information about the steps taken by women to detect breast and cervical cancers. The information below about breast examinations, mammograms and pap smear tests is based on responses from the 72.3% of eligible women, aged 18 years and over, who provided a completed women's health questionnaire as part of the survey.

#### Breast examinations

In 1995, 67% of women regularly examined their own breasts for unusual lumps. Approximately 72% of women had had a breast examination performed by a doctor or medical assistant at some stage in their lives, but only 42% of

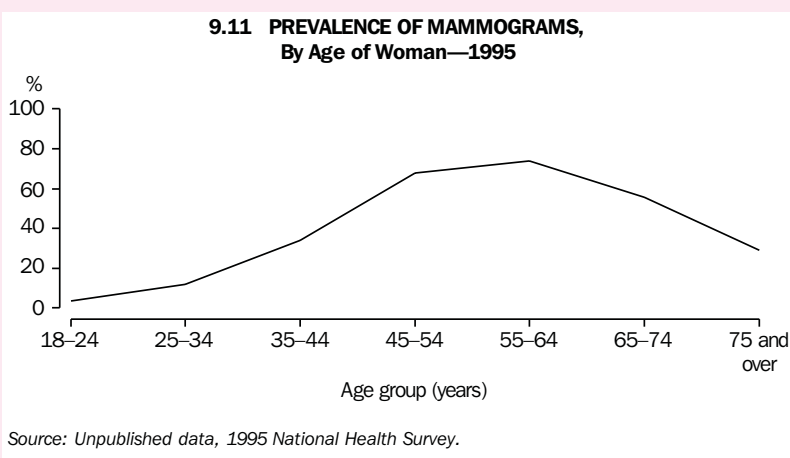
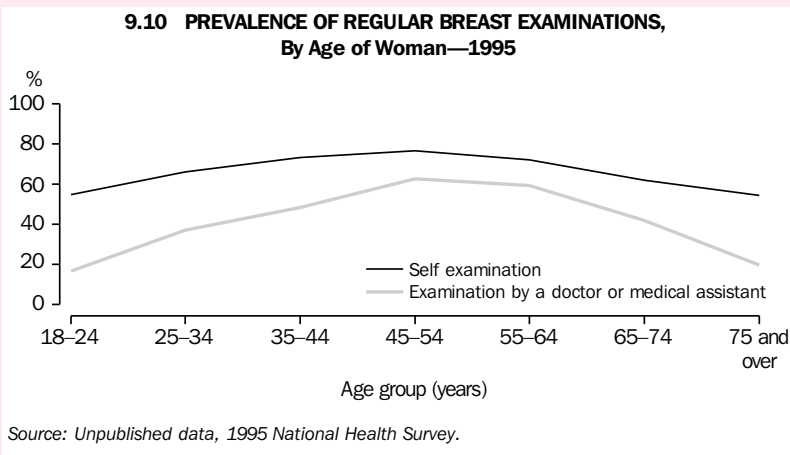
women had regular breast examinations performed by these health professionals.

In all age groups, regular breast self examinations were reported more frequently than were regular breast examinations performed by a doctor or medical assistant. Proportional differences between those who self examined and those who were examined by a health professional were greatest among those in the youngest age group (18–24 years), and in the oldest age group (75 years and over) (graph 9.10). Differences were smallest in those aged 45–54 and 55–64 years, due to an increase in the percentages of women in these age groups who had regular breast examinations by a health professional.

#### Mammograms

Overall, 36% of women had had a mammogram. Women aged 45–54 years (68%), and 55–64 years (74%) were the most likely to have had this test (graph 9.11). The most frequent reason given for a woman's last mammogram was a general check-up (54% of those who had had a mammogram), followed by the presence of symptoms (28%) and a family history of breast cancer (9%).





### Pap smear tests

In 1995, most women (95%) had heard of a Pap smear test. Older women were least likely to have heard of this test, with 22% of women aged 75 years and over reporting that they had not heard of it. Overall, 84% of women had had a Pap smear test. Women in age groups between 25 and 64 years were those most likely to have had this test (graph 9.12).

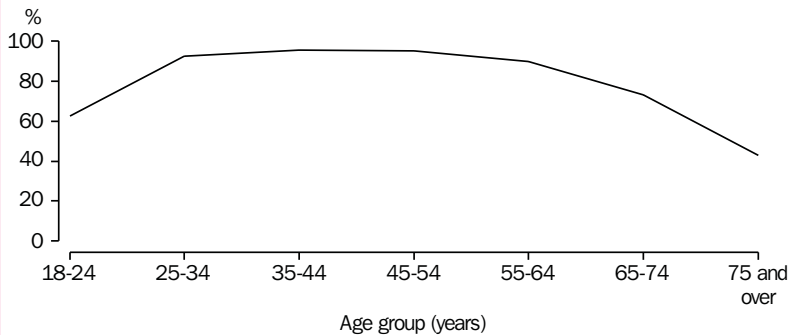
When asked about their last Pap smear test, 39% of women said that it was performed less than one year ago. A further 23% had a test from one to less than two years ago.

### Impact of usual language spoken at home

Although data on fluency in English are not available from the 1995 National Health Survey, data are available on whether a person usually spoke English at home, to help assess the proposition that those who do not speak fluent English may be disadvantaged in obtaining information and education about health related matters including breast examinations, mammograms and Pap smear tests.

In 1995, women who did not usually speak English at home were less likely than those who did to either examine their own breasts regularly (49% and 68% respectively) or to have had a breast examination performed by a doctor or a medical assistant (55% and 73%).

**9.12 PREVALENCE OF PAP SMEAR TESTS,  
By Age of Woman—1995**



Source: Unpublished data, 1995 National Health Survey.

Although women who did not speak English at home were less likely than others to have heard of a mammogram (62% compared with 89%), they were only slightly less likely to have had one (34% compared with 36%).

Women who usually spoke a language other than English at home were less likely to have heard of a Pap smear test (77%) than were women who usually spoke English at home (97%). They were also less likely to have had a Pap smear test (61% compared with 86%).

## Mortality

### Deaths due to skin cancer

In 1997, skin cancer was identified as the underlying cause of death for 810 males and 430 females, accounting for 4.2% of male deaths and 2.9% of female deaths from all types of cancer, and 1.2% of male deaths and 0.7% of

female deaths overall. The total of 1,240 deaths due to skin cancer equates to a rate of 6.7 deaths per 100,000 population.

### Deaths due to breast cancer

In 1997, breast cancer was identified as the underlying cause of death for 2,602 women aged 18 years and over, accounting for 17.4% of cancer deaths, and 4.3% of all deaths, of women in this age group. The adult female death rate for breast cancer was 37.1 deaths per 100,000 women aged 18 years and over.

### Deaths due to cervical cancer

In 1997, cervical cancer was the underlying cause of death for 298 women. Cervical cancer accounted for 2.0% of cancer deaths and 0.5% of all deaths of women aged 18 years and over. The equivalent death rate was 4.2 deaths per 100,000 women aged 18 years and over.

## Injury prevention and control

Injuries are a significant source of preventable illness, disability and mortality in Australia, and place a heavy demand on health services. Over the past decade, injuries, poisonings and violence (referred to as external causes) accounted for more than 7,000 deaths per year. These figures include suicides. National hospital statistics for 1995–96 show external causes to be the second leading cause of hospital separations.<sup>1</sup>

In 1997, 6% of all deaths (7,737 deaths) were due to external causes (table 9.13). Leading external causes of death were suicide (which accounted for 35% of all external causes of death) followed by motor vehicle accidents (23%) and accidental falls (15%). Males accounted for 70% of all deaths due to external causes (male death rate of 59 per 100,000 compared with 25 for females). The male death rate from suicide was more than three times the female rate; and from motor vehicle accidents it was more than twice the female rate. Accidental falls were the only external cause with a higher rate for females.

## 9.13 EXTERNAL CAUSES OF DEATH—1997

Cause of death	no.	%	Crude death rate(a)
MALES			
Suicide	2 146	39.8	23.3
Motor vehicle accidents	1 240	23.0	13.5
Accidental falls	486	9.0	5.3
Homicide	215	4.0	2.3
Drowning and submersion	217	4.0	2.4
Poisoning by drugs/medications	194	3.6	2.1
Other	895	16.6	9.7
<i>All external causes</i>	5 393	100.0	58.5
FEMALES			
Suicide	577	24.6	6.2
Motor vehicle accidents	561	23.9	6.0
Accidental falls	639	27.3	6.9
Homicide	114	4.9	1.2
Drowning and submersion	59	2.5	0.6
Poisoning by drugs/medications	121	5.2	1.3
Other	273	11.6	2.9
<i>All external causes</i>	2 344	100.0	25.2
PERSONS			
Suicide	2 723	35.2	14.7
Motor vehicle accidents	1 801	23.3	9.7
Accidental falls	1 125	14.5	6.1
Homicide	329	4.3	1.8
Drowning and submersion	276	3.6	1.5
Poisoning by drugs/medications	315	4.1	1.7
Other	1 168	15.1	6.3
<b>All external causes</b>	<b>7 737</b>	<b>100.0</b>	<b>41.7</b>

(a) Deaths per 100,000 population.

Source: *Causes of Death, Australia, 1997* (3303.0).

The 1995 National Health Survey identified current injuries and injury-related conditions caused by accidents, incidents (whether intentional or not) or exposures (to a harmful factor). Overall, 2.83 million Australians (16% of the population) reported having an injury or injury-related condition, with 6% of the population reporting an injury and 11% reporting an injury-related condition (table 9.14).

Current injuries were most prevalent among younger age groups, with 15–24 year olds having the highest rates. The most frequently reported types of current injuries were dislocations, sprains and strains, which together affected 1.6% of the population. Injury-related conditions, however, were most prevalent among the middle and older age groups, where the population has had more time to accumulate the long-term effects of injuries. Injury-related deafness (resulting from accident, incident or exposure) was the most common injury-related condition (experienced by 1.5% of the population), with 12 times as many males as females affected.

Falls were the most common cause of most recent injury (those injuries which had occurred in the month prior to interview), affecting 188,700 people with a current injury or injury-related condition (1.0% of the population). The most common types of injuries resulting from these falls were dislocations, strains and sprains, with the majority of falls occurring among those aged under 15 years and those aged 65 years or over.

Just over a third of people (37%) with a current injury or injury-related condition had a work related injury or condition (1.1 million people). Injury-related deafness was the most frequent type of work related condition, affecting 232,200 persons. Injury-related deafness was the most common work-related condition among tradespeople, and plant and machine operators and drivers, with around a quarter (26%) of those employed in these two occupational groups affected.

**9.14 PERSONS WITH AN INJURY OR INJURY-RELATED CONDITION, By Sex—1995**

	Males	Females	Persons	Persons
	%	%	%	'000
<b>Injuries</b>				
Fractures	0.6	0.5	0.6	100.0
Dislocations, sprains, and strains	2.0	1.3	1.6	296.1
Open wounds	0.9	0.5	0.7	124.8
Bruising and crushing	0.8	0.6	0.7	126.7
Burns and scalds	0.5	0.5	0.5	84.3
Other injuries	1.3	1.4	1.4	245.9
<i>Total injuries(a)</i>	<i>6.1</i>	<i>4.8</i>	<i>5.5</i>	<i>989.4</i>
<b>Injury-related conditions</b>				
Deafness (partial/complete)	2.8	0.2	1.5	274.4
Disorders of the intervertebral disc and unspecified back problems	3.1	2.1	2.4	440.1
Arthritis	1.5	1.2	1.4	250.7
Other diseases of the musculoskeletal system and connective tissue	3.3	2.3	2.8	500.2
<i>Total injury-related conditions(a)</i>	<i>13.6</i>	<i>7.5</i>	<i>10.5</i>	<i>1 898.4</i>
Total injury and injury-related conditions(a)	19.3	12.1	15.7	2 833.2
No injury or injury related condition	80.7	87.9	84.3	15 227.9
<i>Total Australian population(a)</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>18 061.0</i>

(a) Only the more frequently reported injury or injury-related conditions are listed. Also, persons may have reported more than one injury or injury-related condition. For both reasons components do not add to totals.

Source: 1995 National Health Survey: Injuries, Australia (4384.0).

## Diabetes mellitus

The rising prevalence of diabetes in Australia is a major concern in terms of social and economic costs. While rates of hospitalisation and deaths directly attributed to diabetes are low, diabetes is often mentioned as a contributory cause on death certificates and has a major impact on quality of life. People with diabetes experience reduced life expectancy and are more likely than people without diabetes to experience major health complications involving the eyes, kidneys, nerves and arteries<sup>2</sup>. Population groups at particular risk of diabetes are older people, Indigenous people and some sections of the overseas-born population.

In 1997, diabetes mellitus was the underlying cause of death in 2.2% of all deaths (2,845 deaths). Death rates increased with age, rising from 58 per 100,000 for the 65–74 year age group to 264 deaths per 100,000 for 85 years and over. Since the early 1980s, the death rate from diabetes mellitus (age standardised death rate per 100,000 total population as at 30 June 1991) has increased slightly overall and fluctuated between 12.2 (1982) and 14.5 (1994). However, these figures indicate only the number of deaths in which diabetes was recorded as the underlying cause of death. From 1994, provision was made to identify all deaths where diabetes was

mentioned on the death certificate. In 1997, diabetes was mentioned on 9,638 death certificates, and therefore could possibly have contributed to 52.0 deaths per 100,000.

The prevalence of diabetes mellitus in the Australian population increased from 1.8% in 1989–90 to 2.4% in 1995. Although small, this increase was statistically significant. Age and sex standardisation of the data indicated that the ageing of the Australian population played only a small part in the increase in prevalence of diabetes. In 1995, of 430,700 Australians who reported that they had been diagnosed with diabetes at some time during their lives, 82% said that they currently had diabetes. Of people ever diagnosed with diabetes, 42% reported non-insulin dependent diabetes, 19% reported insulin dependent diabetes and 6% reported gestational diabetes (table 9.10). The remainder of people with diabetes did not know what type they had. High sugar levels in the blood or urine can indicate diabetes or its precursor, known as impaired glucose tolerance. In addition to those reporting a diagnosis of diabetes, 1.2% of Australians (224,800 people) reported having been diagnosed with high sugar levels at some time during their lives. Of this group, 16% reported that they currently had high sugar levels.

**9.15 PEOPLE WITH DIABETES(a), By Type and Sex—1995**

	Males	Females	Persons	Persons
Type of diabetes	'000	'000	'000	%
Non-insulin dependent diabetes mellitus	92.9	88.9	181.8	42.2
Insulin dependent diabetes mellitus	43.7	35.8	79.5	18.5
Gestational diabetes mellitus	—	27.0	27.0	6.3
Diabetes type unknown	69.6	72.8	142.4	33.1
<b>Total diabetes</b>	<b>206.2</b>	<b>224.5</b>	<b>430.7</b>	<b>100.0</b>

(a) Based upon people who reported a diabetes diagnosis at any time during their lives.

Source: National Health Survey: Diabetes, Australia, 1995 (4371.0).

In 1995, Indigenous people in non-remote areas were 7–8 times more likely to report diabetes than non-Indigenous people, in both the 25–44 and 45–54 year age groups. They were twice as likely in the age group 55 years and over.

A number of initiatives have been developed to support action against diabetes. These include: establishment of a national Vision Impairment Prevention Program to improve screening, education and appropriate referral and treatment for diabetic retinopathy; and developing the Australian Diabetes Obesity and Lifestyle Study based on a survey which commenced in May 1999. The study will estimate the prevalence of self reported medically diagnosed conditions (including diabetes, heart disease and hypertension); diagnosed and undiagnosed type two diabetes; features of the metabolic syndrome (glucose intolerance, hyperinsulinaemia, dyslipidaemia, central obesity and hypertension); other associated diabetes and cardiovascular risk factors (diet/nutrition, physical inactivity, and smoking); health knowledge and attitudes; and health services utilisation and practices.

## Mental health

Mental illness causes considerable suffering and disability for individuals, and the burden of illness within the community is high. Care of people with mental illness has increasingly shifted from separate psychiatric hospitals to mental health services provided in the general health sector, such as psychiatric units in general hospitals and a range of community-based services across the health, housing and community service sectors. This change has promoted the development of more accessible, integrated local services which better support individuals and their families.

The National Mental Health Strategy is a joint initiative of Commonwealth and State and Territory Governments that provides a national framework for mental health service development and policy reform. The first phase of the Strategy was adopted by all Health Ministers in 1992 and was implemented over the period 1 January 1993 to 30 June 1998. During the first five years of the Strategy, the Commonwealth provided over \$250m to assist with the implementation of the Strategy. Of this, \$190m was made available to the States and Territories for service reform initiatives.

The achievements of the first phase of the Strategy have been identified through an evaluation undertaken over the years 1995 to 1997. The *Evaluation of the National Mental Health Strategy: Final Report* was prepared by the National Mental Health Strategy Evaluation Steering Committee for AHMAC. The Strategy identified a growth in spending on community mental health services, an increase in general hospital psychiatric beds, and improved consumer and carer participation in decision making and advocacy.

Changes in the structure and profile of the Australian public mental health system are detailed in the National Mental Health Reports which have been prepared annually since 1993 to document progress under the Strategy. The 1997 Report identified that further progress has been made to expand community-based services (ambulatory, specialised residential, and non-government support services) and introduce changes in the provision and mix of in-patient services (growth of general hospital acute services; reduction in separate psychiatric institutions). For example, the provision of community-based treatment and support services for people with a mental illness grew by 76% since 1993.

On 30 July 1998, Commonwealth, State and Territory Health Ministers endorsed the Second National Mental Health Plan as the framework of activity for a renewed National Mental Health Strategy. The Plan covers the five-year period from 1998–99 to 2002–03. The Plan will expand the focus of mental health reform through attention to:

- promotion and prevention, through community education and early intervention;
- forging stronger partnerships in service reform and delivery, including consumers and their families, general practitioners, emergency services, non-government agencies, and the wider health sector; and
- quality and effectiveness, through the establishment of benchmarks, and service and clinical standards.

The Commonwealth will provide \$328m for mental health over the second five-year phase of the National Mental Health Strategy. This funding will be used to maintain the current level of mental health reform funding available to States and Territories under the Strategy, and to fund further major reform activities within the framework of the Second Plan.

The need for national information about mental health service developments is therefore of paramount importance. This need is being addressed by a range of projects funded by the Department of Health and Aged Care under the National Mental Health Strategy.

In 1995, funding was provided for the National Survey of Mental Health and Wellbeing to gather baseline information about the prevalence of mental illness in the Australian population. The National Survey comprised three research components: a household survey of adult Australians aged 18 years and over; a household survey of children and adolescents aged 4–17 years inclusive; and a study of low prevalence disorders covering people aged 15–65 years. Taken together, the research components provide the most comprehensive information ever available about the mental health status, and needs, of Australians.

## Depression

Depression is not only a major mental health issue. It is a disease of major and growing proportions which, according to the WHO/World

Bank Global Burden of Disease Project, will be the second largest cause of years of life lost due to disability and mortality in the year 2020.

The National Health Priority Committee (NHPC) and AHMAC National Mental Health Working Group (NMHWG) have agreed to focus their initial efforts on depression as the most appropriate area to improve mental health nationally. This is in recognition of the high social and economic costs and public health impact of depression in Australia.

Depression is also identified as a key issue to be addressed under the Second National Mental Health Plan. A Depression Action Plan is being developed under the renewed Strategy.

A national workshop on depression was held in November 1997 to contribute to the development of strategies to address depression across the health care continuum. Stakeholders from around the country attended the Workshop and identified five areas for priority strategic intervention: prevention and promotion; early intervention; management and treatment; community education; and evaluation and monitoring. Following the workshop an expert group was formed to draft both the report to Health Ministers and the Depression Action Plan. The drafting group includes consumer and carer representation, primary and specialist health expertise, population health expertise, and Aboriginal and Torres Strait Islander and non-English speaking representation.

Under the NHPA initiative, the report to Australian Health Ministers on depression was finalised following extensive consultations with States and Territories, non-government organisations, professional bodies, and consumers and carers. The report, which provides a detailed profile of depression in Australia and outlines prevention and management issues, as well as future strategies to address depression, was endorsed by Australian Health Ministers in August 1999.

The Depression Action Plan, being developed in 1999, will focus on strategies to reduce the prevalence and impact of depression in Australia and will cover promotion, prevention, early intervention and treatment activities. The Action Plan will build on the recommendations outlined in the Report and the priorities identified by stakeholders at the National Depression Workshop.

Activities to be outlined in the Plan will cover a range of strategies including those that aim to improve mental health literacy and promote healthy lifestyle choices, targeted prevention activities for high risk groups, support and development of the pivotal role of general practitioners and other primary care workers, support and development of collaborative models of care, and further development and implementation of evidence-based guidelines for the detection and treatment of depressive disorders.

The Action Plan will have close links with other national strategies including the recently developed Mental Health Promotion and Prevention National Action Plan and the National Action Plan for Suicide Prevention. It is anticipated that the Depression Action Plan, which will involve extensive consultation, will be completed by the end of 1999.

## Communicable diseases

Communicable diseases (including infectious and parasitic diseases) are those diseases capable of being transmitted from one person to another, or from one species to another. In 1996, infectious diseases accounted for 1.3% of all deaths in Australia (1,638 deaths). In addition, pneumonia and influenza accounted for a further 1.4% of deaths (1,836 deaths). Death rates increased with age and were greater for males than females aged 45 years and over.

The 1995 National Health Survey found that 4% of the population had experienced a recent and/or long-term infectious or parasitic disease, including herpes and tinea. Of these people, 81% had taken some action for their condition in the two weeks prior to survey, with the most common actions being use of medication and consulting a doctor. In addition, 9% of the population had experienced influenza or the common cold in the two weeks prior to the survey.

Infectious diseases accounted for 2% of total hospital separations in 1996–97; acute respiratory infections, pneumonia and influenza accounted for a further 3% of separations.

Under the National Notifiable Diseases Surveillance System, State and Territory health authorities submit reports of communicable disease notifications for compilation by the Commonwealth Department of Health and Aged Care. The range of diseases required to be reported to State and Territory health authorities has varied over time, and case definitions of these diseases have varied from State to State. Since 1991, approximately 50 disease groups have been included, as recommended by the NHMRC.

In 1997 there were 89,579 notifications to the National Notifiable Diseases Surveillance System (table 9.16). A notable feature of 1997 was the pertussis outbreak which peaked towards the end of the year and resulted in 10,668 cases being notified. The highest number of notifications received was for hepatitis C (unspecified) with 19,692 notifications; this is the first year for which data have been reported for New South Wales and South Australia for this disease category. The number of measles cases rose after the low number reported in 1996 but is still well below the number reported in the outbreak years of 1993 and 1994. Rubella notifications continued to decline in 1997. Notifications of haemophilus influenzae type b appeared to have stabilised at a low rate, having declined markedly after introduction of the conjugated vaccine in 1992. The number of cases of campylobacteriosis remained steady after having risen for several years. Notifications of hepatitis A cases rose considerably, much of this being due to one outbreak in New South Wales. The number of cases of salmonellosis rose while shigellosis numbers dropped slightly. Notifications for chlamydial infection and gonococcal infection continued to rise, while those for syphilis continued to fall. A full discussion of the trends in notifiable disease data in 1997 can be found in *Communicable Diseases Intelligence*, Vol. 23, No. 1, January 1999.



## 9.16 NATIONAL NOTIFIABLE DISEASE SURVEILLANCE SYSTEM REPORTS(a)(b)

Disease	Notifications			Rate per 100,000 population		
	1995	1996	1997	1995	1996	1997
	no.	no.	no.			
Arbovirus Infection n.e.c.	67	52	18	0.4	0.3	0.1
Barmah Forest virus infection	756	837	704	4.7	4.6	3.8
Brucellosis	29	38	41	0.2	0.2	0.2
Campylobacteriosis	10 933	12 158	11 848	91.6	100.4	96.7
Chancroid	2	3	1	0.0	0.0	0.0
Chlamydial infection n.e.c.	6 411	8 420	9 126	53.7	69.6	74.5
Cholera	5	4	3	0.0	0.0	0.0
Dengue	34	43	210	0.2	0.2	1.1
Diphtheria	—	—	0	0.0	0.0	0.0
Donovanosis	85	50	45	0.8	0.5	0.4
Gonococcal infection	3 259	4 173	4 689	18.1	22.8	25.3
Haemophilus influenzae type b infection	74	51	53	0.4	0.3	0.3
Hepatitis A	1 601	2 150	3 076	8.9	11.7	16.6
Hepatitis B — incident	321	225	247	1.8	1.2	1.3
Hepatitis B — unspecified	n.a.	n.a.	7 114	—	—	38.4
Hepatitis C — incident	69	72	81	0.8	0.8	0.5
Hepatitis C — unspecified(c)	—	9 489	19 689	—	89.3	106.3
Hepatitis n.e.c.	55	36	29	0.3	0.2	0.2
Hydatid infection	46	45	61	0.3	0.2	0.3
Legionellosis	160	192	161	0.9	1.0	0.9
Leprosy	7	10	14	0.0	0.1	0.1
Leptospirosis	148	227	126	0.8	1.2	0.7
Listeriosis	58	70	71	0.3	0.4	0.4
Lymphogranuloma venereum	1	0	0	0.0	0.0	0.0
Malaria	625	849	746	3.5	4.6	4.0
Measles	1 324	498	852	7.3	2.7	4.6
Meningococcal infections	382	426	499	2.1	2.3	2.7
Mumps	153	128	191	1.0	0.9	1.0
Ornithosis	176	85	46	1.5	0.7	0.4
Pertussis	4 297	4 389	10 668	23.8	24.0	57.6
Q fever	473	555	593	2.6	3.0	3.2
Ross River virus infection	2 602	7 823	6 683	14.4	42.7	36.1
Rubella	4 380	2 845	1 446	24.3	15.5	7.8
Salmonellosis n.e.c.	5 895	5 819	7 004	32.7	31.8	37.8
Shigellosis	734	676	799	6.1	5.6	6.5
Syphilis	1 854	1 523	1 304	10.3	8.3	7.0
Tetanus	7	2	8	0.0	0.0	0.0
Tuberculosis	1 073	1 067	1 008	5.9	5.8	5.4
Typhoid(d)	69	84	77	0.4	0.5	0.4
Yersiniosis n.e.c.	306	268	245	2.6	2.2	2.0
Total	58 074	65 382	89 576	—	—	—

(a) No notifications have been received during 1993–97 for the following: botulism (food borne), plague, rabies, yellow fever, or other viral haemorrhagic fevers. (b) Not all diseases were notifiable in every State and Territory every year. (c) Data from SA and NSW included for the first time in 1997. (d) Includes paratyphoid in NSW and Victoria, and from July 1996 in Queensland.

Source: *Communicable Diseases Intelligence*, Vol. 23, No. 1, January 1999.

## HIV and AIDS

Surveillance for human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) is conducted by the National Centre in HIV Epidemiology and Clinical Research in collaboration with the State and Territory health authorities and the Commonwealth Government.

By the end of 1998, 19,427 HIV cases, 8,182 AIDS diagnoses and 5,756 deaths following AIDS were estimated to have occurred in Australia

(table 9.16). Surveillance indicates that AIDS incidence peaked during 1994. A steady decline in AIDS incidence was observed from 1994 to 1996, attributable to the fall in HIV transmission in the mid 1980s. The decline in AIDS incidence observed in 1997–98 was probably due to the introduction of more effective antiretroviral therapy for the treatment of HIV infection. It is estimated that there were 11,800 people living with HIV infection in Australia by the end of 1998.



HIV infection continues to overwhelmingly affect males (93%), and disease transmission continues to predominantly occur by sexual contact between men, accounting for about 80% of all HIV transmission in Australia (table 9.17). While exposure to HIV was attributed to heterosexual

contact for an increasing proportion of cases of newly diagnosed HIV infection, over the period 1992–98 the annual number of heterosexually acquired cases has remained stable at 130–160 per year.

### 9.17 NEWLY DIAGNOSED HIV CASES(a)(b), AIDS CASES AND DEATHS FOLLOWING DIAGNOSIS

	Year of diagnosis										Total
	Prior to 1990	1990	1991	1992	1993	1994	1995	1996	1997	1998	
	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.	no.
HIV cases(a)	9 813	1 422	1 415	1 239	1 100	1 031	945	929	795	721	<b>19 427</b>
AIDS cases(b)	1 947	674	802	787	844	950	798	662	370	348	<b>8 182</b>
AIDS deaths(b)	1 057	515	586	598	695	735	651	509	240	170	<b>5 756</b>

(a) Not adjusted for multiple reporting. Total includes 17 cases for which the date of HIV diagnosis was not reported. (b) AIDS cases and deaths following AIDS in 1996, 1997 and 1998 were adjusted for reporting delays; AIDS cases and deaths in previous years were assumed to be completely reported.

Source: *HIV/AIDS and Related Diseases in Australia, Annual Surveillance Report 1998, National Centre in HIV Epidemiology and Clinical Research.*

### 9.18 CHARACTERISTICS OF CASES OF NEWLY DIAGNOSED HIV INFECTION(a), Number of Cases and Percentage of Total Cases

	Unit	Year of HIV diagnosis										Total(b)
		Prior to 1990	1990	1991	1992	1993	1994	1995	1996	1997	1998	
<b>Total cases</b>	<b>no.</b>	<b>9 813</b>	<b>1 422</b>	<b>1 415</b>	<b>1 239</b>	<b>1 100</b>	<b>1 031</b>	<b>945</b>	<b>929</b>	<b>795</b>	<b>721</b>	<b>19 427</b>
Males(c)	%	94.1	91.0	93.0	92.2	92.3	90.7	91.7	91.9	88.6	86.3	<b>92.6</b>
State/Territory												
New South Wales	%	61.9	56.8	57.5	57.8	56.0	50.1	58.1	50.8	51.7	52.0	<b>58.5</b>
Victoria	%	20.6	20.9	21.6	20.4	20.3	21.0	17.7	20.0	22.6	19.3	<b>20.5</b>
Queensland	%	7.6	10.4	11.1	12.4	12.5	16.3	12.3	16.8	14.4	14.3	<b>10.3</b>
South Australia	%	3.3	4.6	3.3	2.7	5.0	3.4	3.3	4.8	4.4	4.7	<b>3.6</b>
Western Australia	%	4.7	5.0	5.1	4.2	4.6	7.0	6.0	5.8	4.5	6.4	<b>5.0</b>
Tasmania	%	0.3	0.6	0.4	0.8	0.2	0.2	0.6	0.3	0.0	0.4	<b>0.4</b>
Northern Territory	%	0.5	0.6	0.4	0.5	0.9	0.7	0.2	0.5	1.4	1.7	<b>0.6</b>
Australian Capital Territory	%	1.1	1.1	0.6	1.2	0.5	1.3	1.8	1.0	1.0	1.2	<b>1.1</b>
Exposure category(d)												
Male homosexual contact	%	82.6	78.8	78.4	76.8	78.7	75.1	73.7	75.5	72.6	64.7	<b>78.9</b>
Male homosexual contact and injecting drug use	%	3.2	3.9	3.2	3.7	3.6	5.5	4.9	3.6	4.0	5.0	<b>3.7</b>
Injecting drug use(c)	%	4.7	6.5	4.7	5.0	3.6	3.3	4.5	3.0	3.2	3.2	<b>4.5</b>
Heterosexual contact	%	3.3	8.9	11.7	12.6	13.4	14.2	15.5	16.6	19.0	25.8	<b>9.2</b>
Haemophilia/coagulation disorder	%	3.8	0.3	0.4	0.4	0.0	0.0	0.2	0.0	0.0	0.2	<b>1.9</b>
Receipt of blood/tissue	%	2.2	1.5	1.1	1.1	0.3	0.9	0.3	0.4	0.1	0.6	<b>1.4</b>
Mother with/at risk of HIV infection	%	0.2	0.1	0.5	0.4	0.4	1.0	0.8	0.9	1.0	0.5	<b>0.4</b>
Other/undetermined	%	25.0	23.8	18.0	12.3	11.0	6.7	9.1	11.4	12.7	14.4	<b>19.5</b>

(a) Not adjusted for multiple reporting. (b) Total includes 17 cases in males for which the date of HIV diagnosis was not reported.

(c) Excludes males who also reported a history of homosexual/bisexual contact. (d) The 'Other/undetermined' category was excluded from the calculation of the percentage of cases attributed to each HIV exposure category.

Source: *HIV/AIDS and Related Diseases in Australia, Annual Surveillance Report 1998, National Centre in HIV Epidemiology and Clinical Research.*

## Health lifestyles and risk factors

### Diet and nutrition

Food and nutrition have long been recognised as important contributors to health. A National Public Health Nutrition Strategy (NPHNS) is being developed and is expected to be completed in the early part of the year 2000. It aims to implement the 1992 National Food and Nutrition Policy. A National Aboriginal and Torres Strait Islander Nutrition Strategy is being developed concurrently.

The National Health and Medical Research Council's *Dietary Guidelines for Australians* (1991) recommend, in part, that Australians eat a wide variety of nutritious foods. Results from the 1995 National Nutrition Survey showed that more than 90% of Australians consumed something from the cereal and cereal products, and the milk and milk products foods groups, on the day before interview. However, over half the males aged 12–44 years and about a third of children aged 4–11 years had not eaten fruit or fruit products. Further, more than 20% of children aged under 12 years had not eaten vegetables or vegetable products.

Australians were more likely to have consumed regular breads and rolls (approximately 71% did so) than any other type of cereal product and they provided approximately 40% of the mean daily intake of cereals and cereal products. Women (61%) were more likely to have eaten fruits than men (51%). Adults were more likely to have eaten Pome fruit (e.g. apples and pears) than any other type of fruit and they contributed approximately 30% to the mean daily intake of fruit products and dishes.

Potatoes, whether eaten as mashed potato or as hot chips etc., were the main contributor to the mean daily intake of vegetable products and dishes

(by 45%–60%). Australians were more likely to have consumed dairy milk than any other type of milk product or dish; dairy milk accounted for approximately 70% of the mean daily intake of milk products and dishes for all age groups.

Nearly every Australian reported drinking some non-alcoholic beverage. For all age groups there was a higher reported incidence of drinking mineral waters and water (mainly consumed as plain drinking water) than drinking any other type of non-alcoholic beverage. Mineral waters and water contributed at least 40% of the mean daily intake of non-alcoholic beverages. The mean daily intake of alcoholic beverages for men was higher than for women, with beer leading for men of all ages and women aged 16–24 years, but replaced by wine for women aged 25 years or over.

Food and beverage intake on the day prior to interview was described in sufficient detail to allow nutrient composition to be determined. The main sources of energy in Australians' diet were bread, dairy milk and potatoes. Fruit juices and drinks also made a moderate contribution for children and adolescents, as did soft drinks for adolescents. Daily intake of energy was larger for males than females, and it peaked at 16–18 years of age for both sexes.

There was a similar pattern with macronutrients such as fat, carbohydrate and protein, except that female intakes peaked at earlier ages than for males, which is consistent with an earlier adolescent growth spurt for females. Intake of vitamins and minerals, such as vitamin A, niacin, thiamin, folate, calcium, potassium and iron, was also derived from food and beverage intake. As with energy and macronutrients, males consumed larger amounts of vitamins and minerals across all age groups. The influence of age upon intake was not as consistent as it was for macronutrients.

## 9.19 MEAN DAILY ENERGY AND NUTRIENT INTAKE, By Age and Sex—1995

Nutrients	Age group (years)						Adults aged 19 and over
	2–3	4–7	8–11	12–15	16–18	19 and over	
	grams	grams	grams	grams	grams	grams	%
MALES							
Cereals and cereal products	136.1	168.1	208.1	250.0	269.9	250.2	93.9
<i>Regular breads and rolls</i>	58.2	78.0	99.1	105.4	108.9	109.0	80.4
Cereal-based products and dishes	68.1	111.3	154.5	159.2	199.8	154.1	69.0
<i>Mixed cereal dishes</i>	23.8	46.2	72.7	68.0	96.3	71.2	21.1
Fruit products and dishes	153.8	146.1	131.4	122.0	97.1	141.3	51.4
<i>Pome fruit</i>	62.9	60.3	63.1	60.1	39.3	43.2	22.9
Vegetable products and dishes	92.6	102.2	157.5	219.9	282.6	283.4	88.3
<i>Potatoes</i>	44.8	53.1	81.4	116.1	146.4	106.2	52.8
Milk products and dishes	507.8	417.6	427.1	501.5	549.9	321.9	92.5
<i>Dairy milk</i>	405.9	308.7	311.1	349.9	403.5	223.3	82.2
Fats and oils added after cooking	6.6	8.9	11.1	12.3	12.2	14.8	76.8
Non-alcoholic beverages	858.1	991.7	1 213.1	1 525.9	2 004.6	2 052.3	99.7
<i>Tea</i>	13.5	12.1	19.1	21.1	24.4	344.8	47.1
<i>Fruit and vegetable juices and drinks</i>	319.2	296.6	274.7	338.2	317.6	139.5	35.4
<i>Soft drinks, flavoured mineral water</i>	69.3	128.9	188.3	314.4	525.4	236.3	36.1
<i>Mineral waters and water</i>	455.1	547.7	726.1	835.7	1 003.0	854.9	75.8
Alcoholic beverages	—	—	—	—	175.1	410.1	41.9
<i>Beer</i>	—	—	—	—	140.1	345.1	28.5
<i>Wine</i>	—	—	—	—	18.9	53.6	14.7
<b>Total food and beverages</b>	<b>1 978.0</b>	<b>2 154.1</b>	<b>2 575.7</b>	<b>3 101.5</b>	<b>4 238.3</b>	<b>4 013.7</b>	<b>100.0</b>
FEMALES							
Cereals and cereal products	132.0	140.4	175.7	175.7	194.6	181.2	95.1
<i>Regular breads and rolls</i>	58.0	69.9	78.1	75.6	95.3	74.2	80.6
Cereal-based products and dishes	67.7	83.4	116.2	120.7	134.9	100.1	69.1
<i>Mixed cereal dishes</i>	31.3	21.7	37.5	55.5	64.6	36.8	16.3
Fruit products and dishes	137.0	141.3	115.5	130.6	118.0	145.7	61.1
<i>Pome fruit</i>	49.9	61.2	52.6	66.3	47.3	43.3	26.5
Vegetable products and dishes	88.8	114.2	156.7	185.7	192.8	234.9	89.3
<i>Potatoes</i>	42.3	54.4	69.7	89.0	66.2	72.8	50.5
Milk products and dishes	467.1	343.1	359.4	336.6	277.7	257.7	94.1
<i>Dairy milk</i>	369.1	245.0	254.0	233.4	167.8	184.4	84.3
Fats and oils added after cooking	6.5	7.5	9.7	8.8	7.1	9.7	73.9
Non-alcoholic beverages	756.3	961.3	1 122.2	1 386.0	1 620.3	1 916.7	100.0
<i>Tea</i>	6.0	11.6	26.4	46.2	72.8	451.5	60.1
<i>Fruit and vegetable juices and drinks</i>	250.6	329.8	281.5	256.7	236.1	109.4	36.1
<i>Soft drinks, flavoured mineral water</i>	46.6	86.7	160.5	210.8	303.5	126.0	25.9
<i>Mineral waters and water</i>	452.4	533.0	647.9	855.1	913.9	849.0	83.6
Alcoholic beverages	—	—	—	—	52.4	102.2	24.4
<i>Beer</i>	—	—	—	—	23.7	37.2	5.1
<i>Wine</i>	—	—	—	—	*10.0	51.3	15.8
<b>Total food and beverages</b>	<b>1 796.5</b>	<b>1 984.3</b>	<b>2 274.4</b>	<b>2 617.8</b>	<b>2 866.1</b>	<b>3 221.1</b>	<b>100.0</b>

(a) Includes plain drinking water. (b) Represents pure alcohol.

Source: National Nutrition Survey: Selected Highlights, Australia, 1995 (4802.0).

## Physical activity

Research has shown that regular physical activity of moderate intensity is important for maintaining good health. In particular, physical activity reduces the risk of coronary heart disease, cardiovascular disease, stroke, hypertension, diabetes, colon cancer and osteoporosis. It can also improve mental health, help to manage arthritis, and prevent injury from falls by improving strength and balance, especially in older people.

The Active Australia initiative was launched in December 1996. Active Australia is a national participation framework committing key stakeholders in the sport, recreation and health sectors to develop a strategic and cooperative approach to encourage participation in physical activity by all Australians. Active Australia recognises the need to develop evidence-based population wide strategies as well as public policies to promote physical activity of moderate intensity in the population.

The health sector response to the Active Australia initiative has included the release of *Developing an Active Australia: A Framework for Action for Physical Activity and Health* in June 1998 and *National Physical Activity Guidelines for Australians* in June 1999.

Health strategies have been developed to improve the health and wellbeing of all Australians by promoting increased levels of physical activity of moderate intensity. Key strategies include increasing people's awareness of the benefits of daily or regular participation in exercise, creating opportunities for structured and informal participation in different environments, developing and coordinating infrastructure to support participation, and monitoring the implementation and effectiveness of the strategies.

Some baseline data on the level of participation in exercise were provided by the 1995 National Health Survey. About two-thirds of the adult population exercised for recreation, sport or fitness. Walking was the most common form of exercise. Of those who exercised, 37% only walked, and a further 31% walked and did other forms of exercise. However, while participation in exercise was reasonably high, 69% of adults were classified to sedentary or low exercise levels based on the frequency, intensity and duration of exercise they had undertaken (table 9.20).

While the proportions of males and females who exercised were similar, the patterns of exercise differed. Young adult males were more likely than females and older adults to undertake vigorous or moderate exercise.

**9.20 ADULTS' PROPENSITY TO EXERCISE(a), By Age and Sex—1995**

	18–44 yrs	45–64 yrs	65 yrs or more	Males	Females	Persons
Nutrients	%	%	%	%	%	%
Did no exercise	30.2	36.2	43.5	33.6	34.4	34.0
Did exercise						
Walking(b)	47.3	51.2	46.6	45.0	53.2	49.2
Moderate(b)	39.9	28.7	23.1	37.8	30.5	34.1
Vigorous(b)	20.5	8.0	2.9	17.8	10.7	15.5
Total(c)	69.8	63.8	56.5	66.4	65.6	66.0
All adults	100.0	100.0	100.0	100.0	100.0	100.0

(a) In previous two weeks. (b) Includes that exercise only, or that exercise in combination with other exercise type(s). (c) Persons may have reported more than one type of exercise, and therefore components will not add to total.

Source: 1995, National Health Survey.

## Drug use

### Use of tobacco and alcohol

Tobacco smoking is the single largest preventable cause of premature death and disease in Australia, and is recognised as a major cause of heart disease, stroke, several different forms of cancer (particularly lung cancer) and many other health problems. There are no identified safe levels of tobacco consumption and while people who smoke carry the greatest burden of disease, exposure to environmental tobacco smoke is dangerous to adults and especially children. Passive smoking has been linked to an increased risk of respiratory illness, heart disease and cancer. In the 1995 National Health Survey, 24% of adults (about 3.2 million persons) were smokers (table 9.21). Although the proportion of adults who smoke had declined, most of this decline was attributable to smokers giving up smoking; the proportion taking up smoking had declined only slightly since the late 1970s. Prevalence of smoking was higher among males than females and declined with age.

1997 saw the launch of the National Tobacco Campaign, a major initiative aimed primarily at assisting smokers aged 18–40 to quit. The first phase of this campaign ran from June 1997 until November 1997, with further phases of activity during 1998 and 1999, and continuing activity through 1999. An evaluation of the National Tobacco Campaign undertaken in December 1997 concludes that the campaign has led to a reduction of more than 1% in the prevalence of smoking in its first six months. This figure equates to more than 190,000 smokers quitting as a result of the campaign.

Alcohol consumption is associated with a variety of health consequences, including liver cirrhosis, mental illness, several types of cancer, pancreatitis, and foetal growth retardation. The National Drug Strategy Household Survey program (NDSHSP) is a joint initiative of Health and Aged Care and the Australian Institute of Health and Welfare (AIHW). In 1998, the National Drug Strategy Household Survey found that 49% of the population aged over 14 years were recent regular (at least once a week) drinkers and that 32% considered themselves recent occasional (less than weekly) drinkers. More men (84%) than women (77%) were recent drinkers (regular and occasional). Non-drinkers were more likely to be women and older persons. A smaller proportion of the Aboriginal and Torres Strait Islander Community (62%) were recent drinkers, 33% of these being regular (weekly) drinkers and 29% occasional drinkers.

This 1998 survey found that approximately one-third of Australian men (33%) and women (38%) who are recent drinkers usually consume alcohol in a hazardous or harmful manner (men consuming more than four standard drinks and women more than two), based on the National Health and Medical Research Council (NHMRC) guidelines for responsible drinking. Young people, particularly young women, are most likely to consume alcohol in this way. Two-thirds of young women (aged 25 years or less) who drink alcohol reported consuming alcohol in a hazardous or harmful way. However, the survey found that men drink at high risk levels more frequently than women do. Most men (82%) who usually consume alcohol at hazardous or harmful levels do so at least weekly.

**9.21 SMOKER STATUS, By Age and Sex—1995**

	18–44 yrs	45–64 yrs	65 yrs or more	Males	Females	Persons
Status	%	%	%	%	%	%
Smoked	28.9	20.7	11.3	27.3	20.3	23.8
Ex-smoker	21.8	32.2	38.3	32.4	22.5	27.4
Never smoked	49.3	47.1	50.4	40.4	57.1	48.9
All adults	100.0	100.0	100.0	100.0	100.0	100.0

Source: 1995 National Health Survey.

## Use of illicit drugs

In recognition of the harm caused by illicit drugs in Australia, a National Illicit Drug Strategy ‘Tough on Drugs’, was launched by the Prime Minister in November 1997. The National Illicit Drug Strategy forms the next major phase of the National Drug Strategy and delivers a range of measures in the areas of supply reduction, demand reduction and harm minimisation. The National Drug Strategy is a comprehensive, integrated partnership between the Commonwealth Government, the State and Territory Governments and the non-government sector.

Following a consultation process involving forums in all States and Territories, a National Drug Strategic Framework 1998–99 to 2002–03, ‘Building Partnerships’, was endorsed by the Ministerial Council on Drug Strategy (MCDS) on 19 November 1998. The framework provides a strategic plan for the next phase of the National Drug Strategy and reflects the decision of the Ministerial Council on Drug Strategy that a nationally coordinated and integrated approach to reduce the harm arising from the use of licit and illicit drugs should continue for a further five years.

The Mission for the National Drug Strategic Framework 1998–99 to 2002–03 is “to improve health, social and economic outcomes by preventing the uptake of harmful drug use and reducing the harmful effects of licit and illicit drugs in Australian society”.

Results of National Drug Strategy Household surveys show that, between 1995 and 1998, use of illicit drugs (both lifetime use and use in the last 12 months) has generally increased. Since 1995, there has also been a marked increase among young females in the use of marijuana. This, combined with static male use, has contributed to a convergence in the overall prevalence of illicit drug use between young males and females.

The 1998 National Drug Strategy Household Survey found that of persons aged 14 years and over, 39% had tried marijuana/cannabis at some stage, 10% had tried hallucinogens and 9% had tried amphetamines for non-medical purposes. In the 12 months prior to the survey, marijuana had been used by 18% of persons aged 14 years

and over, amphetamines by nearly 4%, hallucinogens by 3%, and ecstasy, cocaine and heroin had each been used by approximately 2%.

Around 60% of persons identified either marijuana/cannabis or heroin as the drug primarily associated with a drug ‘problem’. Between 1995 and 1998, there was a substantial shift in public perceptions of these drugs, reflected in an increase from 28% to 37% of persons primarily associating heroin with a drug ‘problem’, and a decline from 30% to 21% of persons identifying marijuana/cannabis.

The number of deaths attributed to accidental opioid overdose among persons aged 15–44 has increased markedly from 6 in 1964 to 600 in 1997. As a rate per million persons aged 15–44, this represents an increase from 1.3 in 1964 to 71.5 in 1997. However, tobacco and alcohol continue to account for the vast majority of drug related deaths. In 1997, tobacco accounted for 18,200 deaths while about 3,700 deaths were attributed to alcohol.

## Use of medication

Use of medication was the most common action people took for their health in 1995, either as a preventive health measure or as a treatment for illness. Results of the 1995 National Health Survey showed that 69% of the population (12.4 million people) used some form of medication in the previous two week period. Females were more likely to use medications than males, 74% compared with 63%.

About 46% of Indigenous people in non-remote areas and 59% of non-Indigenous people reported using medications (excluding vitamins and minerals) in the two weeks prior to interview. However, much of this difference was eliminated after accounting for age.

Overall, the most commonly used medications were vitamins and mineral supplements (used by 26% of the population), pain relievers (24%) and medicines for heart problems or blood pressure (11%). While the overall use of medications generally increased in older age groups, the types of medications used varied across age groups, reflecting the different illness patterns underlying most medication use (table 9.22).

**9.22 MOST COMMONLY USED MEDICATIONS(a),  
By Age—1995**

	%
0–14 years	
Vitamins or minerals	16.2
Pain relievers	13.9
For coughs or colds	11.4
15–44 years	
Pain relievers	28.5
Vitamins or minerals	27.7
Skin ointments or creams	11.4
45–64 years	
Vitamins or minerals	31.4
Pain relievers	25.2
For heart/blood pressure	20.2
65 years or more	
For heart/blood pressure	51.7
Vitamins or minerals	26.1
Pain relievers	19.4

(a) In any two week period.

Source: 1995 National Health Survey.

Just as the proportion of people using medication increased in older age groups, so did the number of medications used. Up to age 44, over half of those using medication used only one type (over a two week period). In contrast, of those aged 85 years or more using medication, 83% used three or more medications, and almost 40% used four or more.

The Drug Utilisation Sub-Committee, which maintains a database to estimate community use of prescription drugs in Australia, reported that an estimated 184.5 million prescriptions were dispensed in 1998. Of the ten drugs most commonly dispensed through community pharmacies, three were antibiotics, two were analgesics, and one was used in the management of hypertension. Other commonly prescribed types of medication were for the treatment of asthma, the management of peptic ulcer, insomnia and a cholesterol-lowering drug (table 9.23).

**9.23 MOST COMMONLY USED PRESCRIPTION DRUGS—1998**

Drug	Description	No. of prescriptions ('000)
Paracetamol(a)	Pain relief	4 729.6
Amoxycillin	Antibiotic	4 594.4
Salbutamol(b)	Management of Asthma	4 507.5
Simvastatin	Cholesterol-lowering drug	4 221.0
Codeine with Paracetamol (30mg or more of codeine per dose unit)	Pain relief	4 160.5
Ranitidine	Treatment of peptic ulcer	3 750.2
Temazepam	Sedative commonly used in the treatment of insomnia	3 400.8
Atenolol	Used primarily in the management of high blood pressure	3 141.1
Cephalexin	Antibiotic	2 944.8
Cefaclor	Antibiotic	2 869.8

(a) This drug is available without a prescription; therefore the number of prescriptions for this drug understates actual community use. (b) Includes an estimate of over the counter use in those States where it is an S3 recordable drug.

Source: Department of Health and Aged Care, Drug Utilisation Sub-Committee (DUSC) database, 1998.



## Children's immunisation

Immunisation coverage goals for Australia for the year 2000, recommended by the National Health and Medical Research Council (NHMRC), call for 90% or more coverage of children at two years of age and near universal coverage of children at school-entry age against diphtheria, tetanus, pertussis (whooping cough, poliomyelitis, measles, mumps, rubella and hib (haemophilus influenzae type b)).

The Australian Childhood Immunisation Register (ACIR), which commenced operation on 1 January 1996, aims to provide accurate and comprehensive information about immunisation coverage for all children under the age of seven. The register is administered by the Health Insurance Commission (HIC) on behalf of the Commonwealth Department of Health and Aged Care, and is a key component of initiatives to improve the immunisation status of Australian children.

ACIR data indicated that, at June 1999, 86.1% of one year olds and 73.5% of two year olds were fully immunised according to the NHMRC Recommended Immunisation Schedule. State summaries by age group based on ACIR data are published quarterly in Communicable Diseases Intelligence (CDI) bulletin.

Information about children's immunisation is also obtained periodically from population surveys conducted by the ABS. Results from the last survey, conducted in April 1995, are shown in table 9.24.

For most conditions, the proportion of children fully immunised declined sharply with age, from high levels at infancy. In part this reflected a

failure to obtain the follow-up/booster vaccinations as recommended in the schedule, and in part it reflected recent changes to the schedule. In particular, the relatively low proportions of children fully immunised against hib may reflect its recent inclusion in the recommended schedule.

## Family planning

The Commonwealth Government provides funding direct to non government agencies through the Family Planning Program. Funding is a contribution to activities for a range of clinical services, counselling services, information, and professional and community education in sexual and reproductive health. The Australian Catholic Bishops Conference receives funding specifically for natural family planning services. Organisations also receive funding from State and Territory Governments.

## Health care delivery and financing

### Government role

The Commonwealth has a leadership role in policy formulation, particularly in areas such as public health, research and national information management. It funds most non-hospital medical services, pharmaceuticals and health research. With the States and Territories, it jointly funds public hospitals, and home and community care for aged and disabled persons. Residential facilities for aged persons are funded by a number of sources, including the Commonwealth. Public health insurance is provided through Medicare, which is discussed in more detail later in this chapter.

**9.24 FULLY IMMUNISED CHILDREN, 3 MONTHS TO 6 YEARS, Condition by Age—April 1995**

	Diphtheria/Tetanus	Pertussis	Polio	Measles	Mumps	Rubella	Hib
Age	%	%	%	%	%	%	%
Less than 1 year	84.0	82.7	83.1	—	—	—	55.4
3–6 months	92.5	92.0	92.0	—	—	—	76.3
1 year	88.5	86.2	86.3	85.5	84.7	79.6	62.3
2 years	63.0	57.5	86.9	91.4	90.1	81.1	52.4
3 years	61.5	55.6	87.9	92.8	90.7	79.7	54.7
4 years	64.5	57.4	86.9	93.9	90.7	77.6	57.8
5 years	77.3	68.4	86.5	93.7	92.2	72.5	43.2
6 years	45.2	17.2	60.2	91.7	88.4	62.8	26.6

Source: *Children's Immunisation, Australia* (4352.0).



The States and Territories are primarily responsible for the delivery and management of public health services and the regulation of health care providers. They deliver public hospital services and a wide range of community and public health services. For example, State and Territory government funded organisations provide school dental care and dental care for low income earners, with other dental care being delivered in the private sector without government funding. Local governments within States deliver most environmental health programs.

Public hospitals, which provide the majority of acute care beds, are funded by the Commonwealth Government and the State and Territory Governments, in addition to receiving revenue from services to private patients. Large urban public hospitals provide most of the more complex types of hospital care such as intensive care, major surgery, organ transplants and renal dialysis, as well as non-admitted patient care. Public hospitals have their own pharmacies which provide medicines to in-patients free of charge and do not attract direct Commonwealth subsidies under the Pharmaceutical Benefits Scheme. This is discussed in more detail later in this chapter.

A small number of doctors and paramedical professionals are salaried employees of the various tiers of government. Salaried specialist doctors in public hospitals are able to treat some private patients in hospital and usually contribute to the hospital a portion of the income earned from fees charged. Other doctors may contract with public hospitals to provide medical services.

### **Private sector role**

The strong private sector, operating in the delivery of health services, receives substantial direct and indirect government subsidies. Within this sector, organisations operating for profit and not for profit play a significant role in providing health services, public health and health insurance. For example, privately owned nursing homes provide the majority of long-term aged care beds.

In the past, private hospitals tended to provide less complex non-emergency care, such as simple elective surgery. However, they are increasingly providing complex, high technology services. Separate centres for non-admitted and day-only admitted patient surgical procedures are mostly

located in the private sector. The private sector includes a large number of doctors and paramedical professionals who are self-employed, generally providing services such as general practice and specialist services, diagnostic imaging, pathology and physiotherapy.

Most prescribed pharmaceuticals dispensed by private sector pharmacies are directly subsidised by the Commonwealth through the Pharmaceutical Benefits Scheme.

An important component of the Australian health care system is private health insurance, which can cover part or all of the hospital charges to private patients, a portion of medical fees for services provided to private admitted patients in hospitals, paramedical services and some aids such as spectacles.

### **National health care system**

Australia has a national system for the delivery of health care which generally covers all permanent residents of Australia. The system is financed largely by general taxes, a proportion of which is raised by an income related Medicare levy. This is discussed in more detail in the following section.

There are four major kinds of Commonwealth health funding mechanisms:

- Health Care Agreement Grants to State and Territory Governments for the operation of public hospitals and a range of other health services;
- Medical benefits, providing patients with rebates on fees paid to privately practising doctors and optometrists;
- Pharmaceutical benefits, via the Pharmaceutical Benefits Scheme (PBS), providing patients with access to a broad range of subsidised medicines; and
- Health Program Grants to government and non-government service providers for a range of other health care services (for example, services to meet special needs, promotion of efficient and effective use of high technology health care, and improvement of general medical practitioner and associated services).

In addition to the specific funding mechanisms mentioned above, health services receive part of the general purpose grants provided by the Commonwealth to State and Territory Governments.

## Medicare levy

When Medicare began in 1984, the levy was introduced as a supplement to other taxation revenue, to enable the Government to meet the additional costs of the national health care system.

The Medicare levy, which was increased from 1% to 1.25% of taxable income on 1 December 1986, increased to 1.4% on 1 July 1993 and to 1.5% on 1 July 1995.

For 1997–98, the applicable rate of Medicare levy was retained at 1.5%. No levy is payable by single people with income less than \$13,389 per year or by couples and sole parents with income less than \$22,594 per year, with a further \$2,100 per year allowed for each child.

A Medicare levy surcharge of 1% was introduced from 1 July 1997 for single people with taxable incomes in excess of \$50,000 per year, and couples and families with combined taxable incomes in excess of \$100,000. The surcharge applies only to those who do not have private hospital cover through private health insurance.

In recent years, revenue raised by the Medicare levy has been equal to about 20% of total Commonwealth health expenditure and approximately 8.5% of total national health expenditure. The Australian Taxation Office estimated revenue from the Medicare levy to be \$4.3b in 1998–99.

## The Commonwealth Government's funding of hospitals

In 1998–99, the Commonwealth contributed \$5.6b in public hospital funding under the Australian Health Care Agreements through Health Care Grants to the States.

Of this amount, approximately \$5.5b was paid to the States under the General and Adjustments components of Base Health Care Grants. The

remainder of Base Health Care Grants consisted of funding for:

- mental health for the implementation of the Second National Mental Health Plan—\$50m;
- quality improvement and enhancement to fund and reward quality improvement and enhancement practices in our hospitals—\$75m; and
- palliative care for the implementation of the National Palliative Care Strategy—\$28m.

The remainder of funding under the Agreements is available for national initiatives in the areas of mental health, palliative care and casemix development.

## Total health expenditure

In 1997–98, the preliminary estimate of total expenditure on health services (including both public and private sectors) was just over \$47b, compared with just over \$44b in 1996–97. This represented an average rate of health services expenditure in 1997–98 of \$2,536 per person. In 1997–98, governments provided more than two-thirds (69.1%) of the funding for health expenditure, while the remaining 30.9% was provided by the private sector. Health expenditure in volume terms grew at an average annual rate of 4.1% between 1989–90 and 1997–98 (table 9.25). In 1997–98, health services expenditure as a proportion of Gross Domestic Product (GDP) was 8.4%. This represented an increase from 8.3% in 1996–97 and 8.2% in each of the years 1991–92 to 1995–96.

Based on available data, it was estimated that about \$853m was spent on health services provided to Indigenous people in 1995–96. This figure represented 2.2% of total health expenditure for that year, and included both government and private expenditure. In 1995–96 the estimated expenditure per person was \$2,320 for Indigenous people, compared with \$2,163 for non-Indigenous people (Deeble et al. 1998).<sup>3</sup>

## 9.25 TOTAL HEALTH EXPENDITURE(a) AND RATE OF GROWTH

Year	Expenditure		Rate of growth	
	Current prices	Chain volume measures(a)	Current prices	Chain volume measures(a)
	\$m	\$m	%	%
1989–90	28 800	33 751	n.a.	n.a.
1990–91	31 270	34 524	8.6	2.3
1991–92	33 087	35 513	5.8	2.9
1992–93	34 993	37 077	5.8	4.4
1993–94	36 787	38 593	5.1	4.1
1994–95	38 967	40 278	5.9	4.4
1995–96	41 783	42 421	7.2	5.3
1996–97	44 279	44 279	6.0	4.4
1997–98(b)	47 267	46 544	6.7	5.1
Average annual growth rate 1987–88 to 1992–93	—	—	6.7	3.2
Average annual growth rate 1992–93 to 1996–97	—	—	6.2	4.7
Average annual growth rate 1984–85 to 1996–97	—	—	6.4	4.1

(a) Reference year 1996–97. Chain volume measures are discussed in detail in the section Chain volume or 'real' GDP of Chapter 29, National accounts. (b) Based on preliminary AIHW and ABS estimates.

Source: Australian Institute of Health and Welfare, Health Expenditure Data Base.

## Hospitals

### Public hospitals

In 1997–98, there were 734 public acute care hospitals (including one Department of Veterans' Affairs hospital) and 30 public psychiatric hospitals.<sup>4</sup> In the previous financial year, the corresponding figures were 727 and 23.

In 1997–98, the public sector provided 62% of hospital facilities, comprising 70% of total hospital beds. These facilities accounted for 68% of total separations, 73% of total patient days, and 63% of same day separations (table 9.26).

In addition to beds in public psychiatric hospitals, there were 2.8 public hospital beds available for acute care per 1,000 population in Australia in 1997–98. This continued the decline in available beds over the decade from 4.1 beds per 1,000 population in 1985–86.

The number of beds available in public psychiatric hospitals in Australia decreased from 2.3 per 1,000 population in 1970 to 0.2 in 1994–95, and has remained at this level between 1995–96 and 1997–98. The substantial reduction in the number of public psychiatric hospital beds in recent years has been the result of moves to deinstitutionalise patients requiring acute or long-term psychiatric care and provide increased continuing care in a community setting. As a result of this reform in mental health services, there has been a corresponding increase in the number of community-based residential services, with bed numbers in these institutions increasing by 40% between June 1994 and June 1996.

Rates of separation for public acute hospitals have increased steadily over recent years, rising from 168 per 1,000 population in 1991–92 to 201 in 1997–98. This increase may be due to several factors including: changes in the age structure of the population; improved reporting by hospitals; and the introduction of a new definition of 'separation' in 1994 designed to capture the episodes of care within the total length of hospital stay. During the period 1991–92 to 1997–98, the average length of stay fell from 5.2 to 4.4 days. This decline in length of stay in part reflects increasing same day separations, which accounted for 43% of all public acute hospital separations in 1997–98.

### Private hospitals

The ABS Private Health Establishments collection obtained information on facilities, patients, staffing and finances from private hospitals, comprising 317 private acute and psychiatric hospitals and 175 free-standing day hospital facilities, in operation throughout Australia during 1997–98.

The average number of beds available at private acute and psychiatric hospitals for admitted patients increased by 11% to 23,091 between 1991–92 and 1997–98. There were 1.3 private hospital beds available per 1,000 population in 1997–98. The average number of beds or chairs at free-standing day hospital facilities (used mainly for short post-operative recovery periods) increased over the same period by 142% to 1,348. This large increase reflects the substantial growth in the numbers of free-standing day hospitals in recent years.

Private hospital separations in 1997–98 totalled 1.9 million, of which 85% were from private acute and psychiatric hospitals and 15% from free-standing day hospital facilities. Same day separations accounted for 53% of all private hospital separations (compared to 43% of public hospital separations). This higher proportion of same day separations contributed to the lower average length of stay in private hospitals (3.3 days) compared to public hospitals (4.4 days) (table 9.26).

The number of full-time equivalent staff engaged at all private hospitals was 42,785, of whom 59% were nursing staff. Total operating expenditure for private acute and psychiatric hospitals during 1997–98 amounted to \$3,232m, of which 59% was spent on salaries and wages (including on-costs). Revenue received during the year was \$3,517m, of which 92% was received as payments from or in respect of patients. Total operating expenditure for free-standing day hospital facilities during 1997–98 amounted to \$122.3m, and revenue received during the year was \$145.3m.

### Hospital care under Medicare

Under the Australian Health Care Agreements between the Commonwealth Government and the State/Territory Governments, all eligible people are entitled to free accommodation, medical, nursing and other care as public patients in public hospitals.

Alternatively, patients may choose to be private patients in public hospitals, enabling them to choose their doctors. Medicare-eligible patients who elect to be private patients in public hospitals are charged separate fees for medical and hospital care. If patients have private insurance, this will usually cover all or part of the charges by a public hospital. Medicare pays benefits subsidising part of the cost of doctors' charges, while private insurance pays an additional amount towards these charges and other costs (e.g. surgically implanted prostheses) incurred as part of the hospital stay.

Private patients in private hospitals are charged doctors' fees and are billed by the hospital for accommodation, nursing care and other hospital services. If the patient holds private health insurance, it will contribute to the payment of these costs. Eligible Medicare patients in private hospitals generally attract Medicare benefits for doctors' fees.

The rate of Medicare benefit for doctors' services provided to a private patient in hospital is 75% of the Medicare Benefits Schedule (MBS) fee. The MBS lists a wide range of medical service items with a scheduled fee for each item. Registered private health insurers offer insurance to Medicare-eligible patients for the difference between 75% and 100% of the Schedule fee, and in some cases an additional amount agreed with the hospital and doctor to ensure that the patient has no out-of-pocket medical cost.

#### 9.26 PUBLIC ACUTE, PRIVATE ACUTE AND PSYCHIATRIC HOSPITALS, Specific Measures—1997–98

	Unit	Public	Private(a)	Total(a)
Bed supply				
Facilities	no.	764	492	<b>1 256</b>
Beds/chairs	no.	55 735	(b)24 439	<b>80 174</b>
Activity				
Total separations	'000	3 770	1 857	<b>5 627</b>
Same day separations	'000	1 625	985	<b>2 610</b>
Total patient days	'000	16 560	6 131	<b>22 691</b>
Average length of stay	days	4.4	3.3	<b>4.0</b>
Average length of stay excluding all same-day separations	days	7.0	5.9	<b>6.7</b>
Average occupancy rate	%	81.4	(c)69.5	<b>(c)77.9</b>
Non-admitted patient occasions of service	'000	32 760	(c)1 670	<b>(c)34 430</b>

(a) Acute and psychiatric hospitals. Includes the Department of Veterans' Affairs hospital in NSW. (b) Annual average total beds/chairs. (c) Excludes private free-standing day hospital facilities.

Source: *Private Hospitals, Australia, 1997–98* (4390.0); *Australian Hospital Statistics, 1997–98*, Australian Institute of Health and Welfare.

## Medicare benefits for private doctors' and optometrists' services

Costs incurred by patients receiving private doctors' services, and some optometrists' services, are generally reimbursed, either fully or in part, through Medicare benefits. These benefits are administered by the Health Insurance Commission through its Medicare Offices.

Medicare Benefits Schedule (MBS) fees are used to calculate Medicare benefit entitlements, but doctors are able to determine their own fees, provided the service is not 'bulk-billed'. If the service is bulk-billed by agreement between the doctor and patient, the doctor must accept the Medicare benefit, paid directly to the doctor, as payment in full.

The rate of benefit for outpatient medical services, such as visits to doctors in their rooms, is 85% of the MBS fee. Once the difference between the Schedule fee and benefit is more than \$50.40 (indexed annually) the benefit is the Schedule fee less \$50.40.

In any year, if the sum of the 'gap' payments (being payments above the benefit level and up to the level of the Schedule fee) for non-hospital services for an individual or registered family exceeds a specified amount (\$280.30 for 1999), all further benefits for the remainder of that year are paid at 100% of the Schedule fee.

Private insurers are prohibited from insuring all or part of non-hospital services which attract Medicare benefits.

## Pharmaceutical Benefits Scheme (PBS)

The Commonwealth Government provides Medicare eligible persons with affordable access to a wide range of necessary and cost effective prescription medicines through the PBS.

Medicare eligible patients who do not hold a Health Care Card, Pensioner Concession Card or Commonwealth Seniors Health Card, are required to pay the first \$20.30 for each prescription item. Concessional patients who hold a concession card must pay \$3.20 per prescription item.

Individuals and families are protected from large overall expenses for PBS listed medicines by safety nets. For general patients (non

cardholders), once the eligible expenditure of a person and/or their immediate family exceeds \$620.60 within a calendar year, the additional payment the patient has to make per item (co-payment) decreases from \$20.30 to the concessional co-payment rate of \$3.20.

For concessional and pensioner patients (cardholders), once their total eligible expenditure exceeds \$166.40 within a calendar year, any further prescriptions are free for the remainder of that year. All pensioners continue to have their pensions supplemented by a pharmaceutical allowance of \$2.70 per week payable fortnightly, or \$140.40 per year, to help defray their out-of-pocket pharmaceutical expenses. The allowance is not paid to other concessional beneficiaries.

Patients may pay more than the relevant co-payment where there is more than one brand of the same drug or alternative product that produces similar results. The Government subsidises on the basis of the lowest priced drug and any difference in price due to brand or product preferences must be met by the patient. The premium is not eligible to be counted towards the patient's safety net.

In 1998–99, the PBS dealt with over 129 million benefit prescriptions, representing a cost to the Government of \$2,795.6m and a total cost, including co-payments, of \$3,397.0m.

The number of PBS prescriptions per capita in 1998–99 was 6.8, compared to 6.7 in 1997–98. The number of benefit prescriptions increased by 3% over the previous year and the cost to government of these prescriptions grew by 10% at current prices.

The rate of growth in prescription numbers and their cost continues to reflect the ongoing trend towards the prescription of newer and more costly medicines. The average dispensed price (in current dollars) for PBS medicine in 1998–99 was \$26.36, compared with \$24.88 in 1997–98. Average PBS dispensed price as a percentage of Average Weekly Earnings increased to 3.7% in 1998–99, from 3.5% in 1997–98.

PBS government costs continue to rise as a percentage of GDP, from 0.51% in 1997–98 to 0.54% in 1998–99. When co-payments are included, the total cost of the PBS increased between 1997–98 and 1998–99 by 10.5% (from \$3,112.3m to \$3,397.0m). This was higher than the 9.7% increase between 1997–98 and 1996–97.

## Private health insurance

Private health insurance is offered by 44 registered health insurers, giving a voluntary option to all Australians for private funding of their hospital and ancillary health treatment. It supplements Australia's Medicare system, which provides a tax-financed public system that is available to all Australians. Depending on the type of cover purchased, private health insurance provides cover against all or part of hospital theatre and accommodation costs in either a public or private hospital, medical costs in hospital, and costs associated with a range of services not covered under Medicare including private dental services, optical, chiropractic, home nursing, ambulance and natural therapies.

The private health sector funds around one-third of all health care in Australia. A sustainable balance is being sought between the public and private health care sectors to ensure a high level of access and choice now and into the future.

### Health insurance coverage

The proportion of the population with private health insurance has continued to decline over the last decade. At June 1998, 31% of the population had private hospital cover, and 32% held ancillary cover (table 9.27).

The Private Health Insurance surveys, conducted by the ABS, provide estimates of the levels and types of health insurance cover in the Australian population. Results of a survey conducted in June 1998 are shown below and in table 9.28.

The level of cover differed by the type of contributor unit to which people belonged. Contributor units comprise all persons in the same family who are covered by common health insurance arrangements. People in contributor units with a partner and with dependent children were most likely to be covered by health insurance arrangements (44.5%). People in contributor units comprising a contributor and dependent children (no partner) were the least likely to be covered by private health insurance (14.8%), but were the most likely to be covered by health benefits or entitlement cards (73.4%) issued by the Department of Veterans' Affairs or Department of Family and Community Services. Health cards provide holders with reduced or free health services such as doctor/dental consultations, hospital episodes and rebates for some medications.

**9.28 TYPE OF CONTRIBUTOR UNIT, By Insurance Status—1998**

	With Private Health Insurance(a)	Without Private Health Insurance
Cause of death		
Contributor only	31.3	68.7
Contributor with dependent children	14.8	85.2
Contributor with partner	40.3	59.7
Contributor with partner and dependent children	44.5	55.5

(a) Hospital and/or ancillary cover.

Source: Health Insurance Survey, Australia, 1998 (4335.0).

**9.27 PERSONS WITH PRIVATE INSURANCE, Proportion of Total Population**

	1990	1992	1994	1996	1997	June 1998
	%	%	%	%	%	%
With private hospital cover	44.5	41.0	37.2	33.6	31.9	30.6
With private ancillary cover	39.9	37.5	34.5	32.9	31.6	31.7

Source: Private Health Insurance Administration Council, Quarterly Statistics, June 1998.



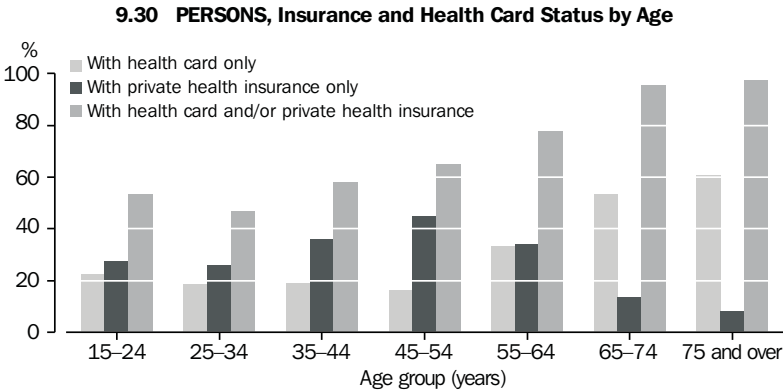
The survey results showed that people who lived in capital cities were more like to be covered by health insurance than those living elsewhere in Australia. Females reported slightly higher rates of insurance than males (39.4% and 36.5% respectively). The highest proportions of people covered by private health insurance arrangements were in the 45–54 year age group (48.8%); the lowest were in the 25–34 year age group (28.1%). Graph 9.30 shows the levels of coverage by private health insurance and/or government health cards. While the level of private health insurance declined in older age groups, the level of coverage by government health cards increased, such that over 90% of persons aged 65 years and more were covered by either private insurance or a health card.

As graph 9.31 shows, the proportion of people with private health insurance, particularly those

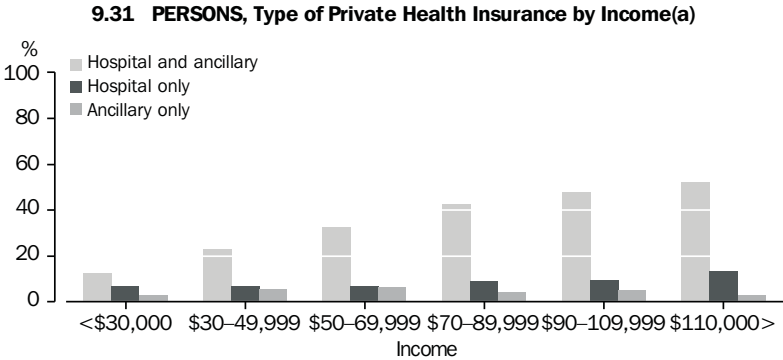
with both hospital and ancillary cover, increased markedly as income increased.

The most commonly reported reasons for having private health insurance were 'security, protection and peace of mind'. Other reasons given for insurance coverage differed by the length of time people had been covered. Among those covered for less than five years, the second most common reason for having private insurance was that it 'provided additional benefits for ancillary services or extras'. For those who had private insurance for five years or more, 'choice of doctor', 'shorter waiting times for treatment' and a concern over 'hospital waiting lists' were more commonly reported.

The cost of health insurance was the most commonly reported reason for not having health insurance, reported by 44% of those people who were not covered.



Source: Health Insurance Survey, 1998 (4335.0).



(a) Annual income of the contributor unit.

Source: Health Insurance Survey, 1998 (4335.0).

### Rebate on private health insurance premiums

In response to declining coverage of the population by private health insurance, from 1 January 1999 the Commonwealth Government introduced a 30% Rebate on premiums paid for private health insurance. All Australians eligible for Medicare and covered by a health insurance policy offered by a registered health fund are eligible for the Rebate. The Rebate gives people 30% of the cost of private health insurance premiums on hospital cover, ancillary cover and a combination of both. Since the Rebate is set at 30% of the actual cost of premiums, it keeps pace with any increases in individual fund or product premiums. The Rebate can be taken as a direct premium reduction, a refundable tax rebate or a direct payment available from Medicare offices.

### Community rating and reinsurance

Community rating is the underlying principle of the current private health insurance system. Community rating means that people cannot be discriminated against in obtaining health insurance on the basis of health risk. Community rating requires that in setting premiums, or paying benefits, private insurers cannot discriminate between contributors on the basis of health status, age, race, gender, sexuality, use of hospital or medical services, or general claims history.

The principle of community rating is supported by a reinsurance system within the private health insurance industry. Reinsurance supports the principle of community rating by sharing between health insurers the hospital and medical costs of high risk members admitted to hospital. Insurers with a greater proportion of low risk members (generally the young) pay contributions into the reinsurance pool while those with a greater proportion of high risk groups (the chronically ill and the aged) receive transfers from the pool.

In response to concerns about reinsurance arrangements identified in the 1997 Productivity Commission report on private health insurance, a review of the existing arrangements has been established. The major objective of the review is to put in place a scheme that will:

- continue to support the principle of community rating while at the same time addressing the problems of the current system by providing strong efficiency incentives;
- encourage the use of cheaper, out-of-hospital care where appropriate; and

- more fairly reflect the costs of high risk groups that are not currently recognised.

The review will be completed in 1999.

### Recent initiatives in private health insurance

Recent initiatives include the following:

- Developing 'no gap' or 'known gap' products—uncapped medical bills charged by practitioners to privately insured hospital patients have raised issues concerning the amount of the 'gap' fee, as well as the fact that patients may be unaware of the likely financial implications until after their treatment is complete. Private insurers are required to have in place 'no gap' and 'known gap' products by July 2000.
- Simplified billing—this addresses the problems of multiple bills and unforseen out-of-pocket costs for private patients. Simplified billing encourages hospitals, doctors and health funds to work together to simplify the billing process and make sure that patients are informed about any out-of-pocket costs they may have before they go into hospital. Patients benefit by receiving only one or two bills, rather than many from various doctors, and claims from health funds and Medicare are made on the patient's behalf.
- Lifetime Health Cover—this allows health funds to charge different premiums based on a person's age when they first take out hospital cover. People taking out hospital cover early in their lives will pay lower premiums than those taking it out later in life. This rewards membership loyalty and early joining while deterring people who join health funds knowing they will need to claim for health services in the near future, but drop their membership soon afterwards. Under Lifetime Health Cover, the premium paid by people entering private health insurance will be based on the age at which they first join and, once set, remains at that rate relative to premiums for people entering at different ages. In other respects the principle of community rating is maintained.
- Other reforms addressing affordability, product innovation and industry efficiency include:
  - a reduction of in-hospital pharmaceutical gap fees;



- discounted premiums for group members, when the discount reflects administrative savings;
- loyalty bonus schemes, that will allow health funds to develop rewards for members based on length of membership;
- private sector trials of co-ordinated care and early discharge programs;
- a private health insurance consumer information service; and
- regulation of the private health insurance industry, which will put private health insurance on a more commercial footing.

### Household expenditure on health and medical care

The 1993–94 Household Expenditure Survey provides estimates of expenditure on medical care and health by households across Australia. Expenditure is net of any refunds and rebates received from Medicare, private health insurance companies and employers.

Household expenditure on medical care and health expenses varied according to the life cycle stage of a household (table 9.32). These changes were associated with changes in household size, the amount of income earned, and the age of household members. For lone persons under 35 years, for whom household size and income are relatively low, expenditure was the lowest (\$10.56 per week). As the cycle progressed and household size and income generally increased, expenditure also generally increased, reaching its highest at the stage when the household consists of a couple with non-dependent children (\$43.42 per week). By the time a household comprises one person only, aged 65 and over, expenditure had decreased to \$12.81 per week.

A more comprehensive picture of expenditure on health and medical care can be constructed by separately identifying government expenditure on health. An ABS study of the effects of government benefits and taxes allocated government health expenditure in 1993–94 to households according to an 'insurance premium' approach. This allocated benefits to persons based on average utilisation rates for their age, sex and State or Territory of residence.

**9.32 EXPENDITURE PER HOUSEHOLD ON HEALTH AND MEDICAL CARE—1993–94**

	Unit	Lone person aged under 35	Couple only, reference person aged under 35	Couple with dependent children only		
				Eldest child aged under 5	Eldest child aged 5–14	Eldest child aged 15–20
Average weekly household income (gross)	\$	476.09	963.91	790.94	842.91	1 022.4
Average number of persons in household	no.	1.0	2.0	3.4	4.5	4.2
Average weekly household expenditure(a)(b)						
Accident and health insurance(c)	\$	4.12	14.46	15.38	15.95	19.26
Practitioners' fees	\$	4.25	5.13	7.91	8.57	10.22
General practitioner doctor's fees	\$	0.24	0.59	1.38	0.9	0.93
Specialist doctor's fees(c)	\$	0.33	1.19	1.99	1.54	2.02
Dental charges, optician's and practitioner's fees, n.e.c.(c)	\$	3.68	3.37	4.55	6.13	7.27
Medicines, pharmaceuticals, therapeutic appliances and equipment	\$	2.10	4.14	8.84	6.71	7.71
Other health charges	\$	*0.09	*0.34	*1.06	*0.61	*0.77
Total household health expenses	\$	10.56	24.08	33.19	31.83	37.96
Selected government expenditure						
Hospital care	\$	6.56	14.41	26.24	23.62	27.51
Medical clinics	\$	6.44	14.17	28.06	30.25	27.11
Pharmaceuticals	\$	1.36	1.86	4.95	6.39	5.29
Other health benefits	\$	1.39	2.67	4.78	6.36	5.30
Total government health expenditure per household	\$	15.75	33.11	64.03	66.61	65.21

...continued

**9.32 EXPENDITURE ON HEALTH AND MEDICAL CARE—1993–94—continued**

	Unit	Couple with		Couple only		Lone person aged over 65
		Dependent and non-dependent children	Non-dependent children only	Reference person aged 55–64	Reference person aged over 65	
Average weekly household income (gross)	\$	1 332.22	1 109.61	544.63	389.98	213.12
Average number of persons in household	no.	4.57	3.27	2.00	2.00	1.00
Average weekly household expenditure(a)(b)						
Accident and health insurance(c)	\$	23.77	23.50	17.80	13.66	5.26
Practitioners' fees(c)	\$	11.00	9.11	6.29	5.54	2.42
General practitioner doctor's fees	\$	1.35	0.79	0.44	0.34	0.06
Specialist doctor's fees(c)	\$	2.02	2.37	1.49	1.90	0.83
Dental charges, optician's and practitioner's fees, n.e.c.(c)	\$	7.37	5.96	4.36	3.30	1.53
Medicines, pharmaceuticals, therapeutic appliances and equipment	\$	7.45	9.40	7.40	7.11	4.22
Other health charges	\$	*0.69	*1.40	*0.22	*1.68	*0.91
Total household health expenses	\$	42.91	43.42	31.71	27.99	12.81
Selected government expenditure						
Hospital care	\$	31.04	36.95	30.23	77.21	47.68
Medical clinics	\$	29.63	26.56	20.01	25.67	13.81
Pharmaceuticals	\$	5.67	5.82	5.49	10.85	5.99
Other health benefits	\$	5.61	4.14	3.06	2.48	1.25
Total government health expenditure per household	\$	71.95	73.74	58.79	116.21	68.73

(a) The average obtained when the total estimated expenditure for a particular expenditure item is divided by the estimated number of households within the scope of the survey in the relevant category of household type. (b) Net of refunds and rebates. (c) At least one of the estimates in this row has a relative standard error greater than 25%.

Source: Unpublished data, 1993–94 Household Expenditure Survey.

Selected government expenditure in table 9.32 comprises the outlays by government on the provision of health services, including hospital care, medical clinics, pharmaceuticals and other health benefits. Underallocation of government health expenditure occurred because certain populations, such as people living in special dwellings (e.g. boarding houses, hotels and motels, prisons and nursing homes), are excluded from the Household Expenditure Survey.

### Other health services

In addition to hospital services, most medical services in Australia are delivered by private medical practitioners on a fee-for-service basis or by medical practitioners employed in community health centres. Two surveys of the private medical practice industry were conducted by the ABS in respect of the 1994–95 financial year. Information from the surveys about medical practitioners who work in private practice in

Australia is contained in *Chapter 21, Service industries*.

Results of the 1995 National Health Survey indicated that 23% of the population (4.2 million people) consulted a medical practitioner recently (within two weeks prior to the survey), representing over 5.5 million consultations. Around 15% of the population, however, had not consulted a doctor in the last 12 months (table 9.33). The most common reasons for consulting a doctor were respiratory conditions, diseases of the musculoskeletal system and check-up/examination.

Other commonly consulted health professionals included dentists, chemists and chiropractors.

The proportion of people consulting a health professional increased with age and, for most types of practitioner, was higher for females than males.

**9.33 CONSULTATIONS WITH HEALTH PRACTITIONERS(a), By Age and Sex—1995**

	0–14 yrs	15–44 yrs	45–64 yrs	65 yrs or more	Males	Females	Persons
Type of health professional	%	%	%	%	%	%	%
Doctor							
General medical practitioner	17.4	18.3	22.4	35.6	18.5	23.5	21.0
Specialist medical practitioner	2.2	3.7	5.3	6.9	3.5	4.7	4.1
Total(b)	18.9	20.5	25.3	38.5	20.4	26.1	23.3
Dentist(c)	7.5	4.9	6.3	5.4	5.4	6.0	5.7
Chemist	2.6	2.9	1.8	0.9	1.8	2.9	2.4
Chiropractor	0.5	1.9	2.3	1.2	1.4	1.8	1.6
Physiotherapist	0.5	1.7	2.0	1.7	1.5	1.5	1.5
Nurse	2.4	0.9	0.5	2.1	1.1	1.5	1.3

(a) In any two week period. (b) Some people consulted both a general medical practitioner and a specialist medical practitioner, and therefore components do not add to total. (c) Persons aged two years or more.

Source: 1995 National Health Survey.

**Health workforce**

In 1998–99, about 281,200 people were employed in health occupations in Australia, according to ABS labour force estimates, comprising about 3.3% of the total number of employed persons. The largest components of the health workforce were registered nurses (150,800) and medical practitioners (31,600 general medical practitioners and 14,100 specialist medical practitioners) (table 9.34).

Males predominated in medical practice, about 68% of general medical practitioners and 79% of specialist medical practitioners being male. Males also predominated in dentistry, 82% of dental practitioners being male. In contrast, females predominated in nursing (91% of registered nurses) and most allied health occupations (for example, 96% of speech pathologists, 90% of occupational therapists and 75% of physiotherapists).

**9.34 EMPLOYED PERSONS IN HEALTH OCCUPATIONS—Average Over 1998–99(a)(b)**

	Males	Females	Persons
ASCO unit group	'000	'000	'000
Generalist medical practitioners	21.6	10.0	31.6
Specialist medical practitioners	11.2	2.9	14.1
Dental practitioners	6.0	1.4	7.4
Pharmacists	8.2	5.5	13.7
Occupational therapists	0.7	5.7	6.4
Optometrists	2.0	1.2	3.2
Physiotherapists	2.8	8.2	10.9
Speech pathologists	0.1	1.7	1.8
Chiropractors and osteopaths	1.0	0.9	1.9
Podiatrists	0.3	0.8	1.1
Medical imaging professionals	3.9	6.4	10.3
Dietitians	0.0	2.1	2.1
Registered nurses	13.3	137.6	150.8
Nurse managers	0.7	2.9	3.6
Nurse educators and researchers	0.3	1.6	1.9
Registered midwives	0.6	6.9	7.5
Registered mental health and development disability nurses	2.7	2.2	4.9
Miscellaneous health professionals	29.6	41.5	71.1
Natural therapy professionals	1.2	3.5	4.7
Other health professionals	0.7	2.5	3.3
<b>Total employed in health occupations(c)</b>	<b>77.2</b>	<b>204.1</b>	<b>281.2</b>
Total employed	4 887.0	3 751.4	8 638.4

(a) Average calculated on quarterly estimates. (b) When numbers are less than 4,400, errors over 25% may occur. (c) Total is for Health professionals and does not include Health and welfare associate professionals and veterinarians.

Source: Unpublished data, Labour Force Survey.

Data from the Office for Aboriginal and Torres Strait Islander Health indicate that, as at February 1999, there were about 27 Indigenous registered medical practitioners, 145 Indigenous nurses and almost 1,300 Aboriginal health workers working in the government and community sectors.

## Health-related organisations

### International

#### World Health Organization (WHO)

WHO is a specialised agency of the United Nations having as its objective the attainment by all peoples of the highest possible level of health. Australia is a member of the Western Pacific Region, one of WHO's six geographic regions, and sends representatives to attend the annual World Health Assembly meeting in Geneva as well as Western Pacific Regional Committee Meetings. Australia's assessed contribution to WHO's core budget for 1999 was US\$5.9m.

#### International Agency for Research on Cancer (IARC)

The IARC was established in 1965 within the framework of the WHO. The headquarters of the agency are located in Lyon, France. The objectives and functions of the agency are to provide for international collaboration in planning, promoting and developing research in all phases of the causation, treatment and prevention of cancer. Australia's contribution to the IARC for 1999 was US\$0.9m.

### Australian Government

#### Health and Community Services Ministerial Council

The Health and Community Services Ministerial Council incorporates the Australian Health Ministers' Conference (AHMC), Australian Health Ministers' Advisory Council (AHMAC), Community Services Ministers' Conference (CSMC) and the Standing Committee of the Community Services and Income Security Administrators (SCCSISA).

The Health and Community Services Ministerial Council was formed in 1993 by a decision of the Council of Australian Governments (COAG), bringing together the Australian Health Ministers' Conference and the Community Services Ministers' Conference. This combined Council meets as necessary to deal with the wider

framework of health and community service issues of interest to members of both AHMC and CSMC.

The AHMC and its advisory body, the AHMAC, provide a mechanism through which the Commonwealth, State and Territory and New Zealand Governments can discuss matters of mutual interest concerning health policy, services and programs. The AHMC comprises the Commonwealth, State, Territory and New Zealand Ministers responsible for health. Neither the Conference nor the Council has statutory powers, and decisions are reached by consensus.

In 1999, Health Ministers continued to focus on: National Public Health Partnerships, Aboriginal and Torres Strait Islander people's health, national health priorities, national rural health strategies, environmental health and a uniform national framework for control of radiation. Ministers also focused on safety and quality in Australian health care, health information management and technological development, health and medical research, a range of health industry workforce issues and medical disaster coordination.

Similarly, the CSMC and its advisory body, the SCCSISA, provide a mechanism through which the Commonwealth, State and Territory, New Zealand and Papua New Guinea Governments can discuss matters of mutual interest concerning community services, and welfare policy and programs. The CSMC comprises the Commonwealth, State, Territory and New Zealand Ministers responsible for community services and welfare, with an open invitation to the Papua New Guinea Ministers. Neither the Conference nor the Council has statutory powers, and decisions are reached by consensus.

In 1999 Community Services Ministers discussed a wide range of issues relating to child protection and family reunification, care for children with intensive support needs, foster care, cross jurisdictional issues, youth and youth homelessness, aged care and ageing, and a national families strategy. Ministers also continued negotiations and discussions on renewal of the Supported Accommodation Assistance Program.

Ministers with responsibilities for disability services continued discussions on the future directions of disability services.

**Department of Health and Aged Care (H&AC)**

The Commonwealth Department of Health and Aged Care provides policy advice and implements Commonwealth government policies on public health, health care, health care funding and aged care, including the links between aged care and health.

The Department provides national coordination and monitoring of health and aged care. It promotes outcome-focused planning by governments, and investment in prevention of and early intervention in disease, providing incentives for efficient, best practice care. The Department also represents and promotes Australia's health and aged care achievements and capabilities internationally.

The Department's role in policy advice, and the administration and financing of Commonwealth government health and aged care programs, encompasses the following areas:

- public health and medical research;
- health promotion and disease prevention;
- national drug abuse strategy;
- primary health care of Aboriginal and Torres Strait Islander people;
- health benefits schemes (including Medicare benefits and pharmaceutical benefits);
- general practice and other medical workforce issues;
- acute care;
- mental health;
- regulation of therapeutic goods;
- services for the aged, including carers; and
- community care.

The Department works in association with other agencies in the Portfolio, including the Health Insurance Commission, the Australian Institute of Health and Welfare, the Australian Hearing Services Authority, Health Services Australia, the Australian Radiation Protection and Nuclear Safety Agency, the Private Health Insurance Administration Council, the Private Health Insurance Complaints Commissioner and the Director of Professional Services Review.

**Australian Institute of Health and Welfare (AIHW)**

AIHW is a statutory authority within the Commonwealth Health and Aged Care portfolio. The Institute's mission is to inform community discussion and decision making through national leadership in the development and provision of authoritative and timely information and on analysis of the health and welfare of Australians. The AIHW works closely with other agencies which collect data, produce statistics and undertake research and analysis in the health, welfare and housing assistance fields.

The AIHW also provides support to the States and Territories in the health and welfare areas, primarily through the Australian Health Ministers' Advisory Council, the Standing Committee of Community Services and Income Security Administrators, and State and Territory housing authorities.

The Institute's major divisions are located in Canberra. The Institute also supports three collaborating units: the AIHW National Perinatal Statistics Unit (Sydney); the AIHW Dental Statistics and Research Unit (Adelaide); and the AIHW National Injury Surveillance Unit (Adelaide). In addition, the AIHW jointly funds, with the ABS, the Aboriginal and Torres Strait Islander Health and Welfare Information Unit within the ABS National Centre for Aboriginal and Torres Strait Islander Statistics, Darwin. The National Centre for Classification in Health (which has sites in Sydney and Brisbane) also receives joint funding from the AIHW, the ABS, the Department of Health and Aged Care and the Queensland University of Technology.

**National Health and Medical Research Council (NHMRC)**

NHMRC is a statutory authority, within the Commonwealth Health and Aged Care portfolio, which provides advice to the Commonwealth Government, the State and Territory Governments and the community on matters relating to individual and public health and on health ethics issues. It also advises the Minister for Health and Aged Care on funding for medical and public health research.

The NHMRC statement of strategic intent is that the NHMRC will work with others for the health of all Australians. This statement is an important step in realising the NHMRC's role in providing collaborative leadership throughout the health sector.

The Council comprises nominees of Commonwealth, State and Territory health authorities, and a nominee of the Aboriginal and Torres Strait Islander Commission, as well as members with expertise in business, trade union, health professional education, medical and allied health services, consumer, environmental and welfare issues.

### **Private Health Insurance Administration Council (PHIAC)**

PHIAC is a statutory authority established in June 1989. The main powers and functions of the Council, which are set out in section 82G of the National Health Act, are as follows:

- to monitor the financial performance of health funds to ensure that the statutory reserve requirements are being met;
- to administer the reinsurance account arrangements;
- to collect and disseminate financial and statistical data, including tabling of an annual report to Parliament on the operations of health funds;
- to establish uniform reporting standards for funds;
- to impose levies to cover the operating costs of the Council and any unpaid claims of a collapsed fund;
- to receive applications for the review of acute care certificates and application fees, and administer the funding arrangements for the operation of the Acute Care Advisory Committees;
- to obtain from registered organisations, for the purposes of modelling, evaluation and research, information referred to in the Hospital Casemix Protocol;
- to collect and disseminate information about private health insurance, to enable people to make informed choices about private health insurance; and
- to approve the registration of simplified billing agents.

PHIAC disseminates statistics through an annual report and through quarterly reports made available to health funds, the Commonwealth Government and State Governments, and other users with an interest in health insurance. The statistics are compiled from registered health benefits organisations' quarterly returns, and provide data on membership and coverage, bed days, and benefit paid.

### **Australian Quarantine and Inspection Service (AQIS)**

AQIS carries significant health-related responsibilities in export inspection, quarantine administration and imported food.

Export inspection activities are derived from the *Export Control Act 1982*, which is the principal legislation for export activities, and subordinate legislation comprising regulations enabled under this Act and Ministerial Orders made under these regulations.

Inspection covers meat, fish, dairy products, processed foods and vegetables, dried fruit, fresh fruit and vegetables, grains, horticultural and plant products, live animals, and some animal products. The aims of the inspectorate are to assist the export of Australian agricultural, forestry and fishery products by providing information, services and facilities that enable exporters to comply with the animal and plant health requirements of importing countries. It also aims to provide effective inspection services for food and other products under AQIS control to ensure that they are safe and wholesome, are informatively described, meet international requirements and facilitate trade.

In 1998–99, AQIS provided inspection for about \$3b worth of export meat to more than 120 destinations.

A range of non-prescribed goods is also inspected and certified on an ad hoc basis where overseas governments require this as a condition of entry of Australian goods.

AQIS quarantine activities derive from the *Quarantine Act 1908* and the *Biological Control Act 1984*. Programs are designed to address the risk of introduction of diseases and pests while enabling the importation of cleared agricultural products. Animal and plant health requirements are negotiated with exporting countries, involving the latest technology for assurance of quarantine safety.

Quarantine activities in some States are contracted to State Departments of Agriculture on the Commonwealth's behalf, and include both monitoring and surveillance elements. In 1998–99, inspections based on risk management principles were undertaken of 10,980 ship arrivals, 56,000 first port aircraft arrivals, 7.8 million passengers and aircrew, 950,000 cargo containers (20 foot equivalent units) and 4.15 million air freight consignments.



Quarantine responsibilities include the administration of animal quarantine stations at Sydney and Melbourne, and the supervision of a range of plant quarantine stations and private facilities for both animal and plant quarantine.

All food imported into Australia is also subject to inspection under the provisions of the *Imported Food Control Act 1992*. In 1998–99, 36,371 shipments were subject to AQIS clearance, of which 7,527 were automatically released due to the good compliance history of the supplier. The remaining 28,844 shipments were closely inspected and/or analysed, with the result that 1,122 failed to meet the relevant food standards and were denied access to the Australian marketplace. Where an overseas government's inspection system can be shown to provide safety assurances equivalent to Australia's food inspection system, food accompanied by certification from the agency administering that system is allowed entry with minimal inspection and testing on arrival.

AQIS has significant international involvement in the development of international food safety standards and related aspects of hygiene and manufacturing practice.

### **Cancer registries**

Cancer is a notifiable disease in all States and Territories and is the only major disease category for which an almost complete coverage of incidence data is available. Good information on the occurrence of different types of cancer, on characteristics of patients, and on survival and mortality is essential to provide a sound basis for epidemiological studies and the initiation of new prevention and treatment programs.

The only effective method of obtaining cancer incidence data is through universal registration of cancer cases. Cancer incidence data are available from cancer registries which operate in each State and Territory. These registries are supported by a mix of State and Territory government and anti-cancer council funding.

The National Cancer Statistics Clearing House, operated jointly by the Australian Institute of Health and Welfare and the Australasian Association of Cancer Registries, compiles data produced by State and Territory registries on an ongoing basis, and produces national statistics on cancer incidence and mortality.

### **National Diabetes Register**

The National Diabetes Register is a record of people in Australia with diabetes who use insulin. It is maintained by the Australian Institute of Health and Welfare. The Register is part of the National Diabetes Strategy and Implementation Plan and is funded by the Commonwealth Department of Health and Aged Care. It is currently collecting information from people who have been diagnosed with insulin treated diabetes since 1 January 1999.

### **Communicable Diseases Network–Australia New Zealand**

The Communicable Diseases Network–Australia New Zealand was established in 1990 to enhance the capacity of both countries for communicable disease surveillance and control. It comprises: Commonwealth, State, Territory and New Zealand public health officers; representatives from the Australian Defence Force, the Department of Agriculture, Fisheries and Forestry–Australia, the Australian Institute of Health and Welfare, the Australia New Zealand Food Authority and the National Centre for Epidemiology and Population Health; and experts in epidemiology and communicable disease control. The Network coordinates the surveillance of communicable diseases through the National Notifiable Diseases Surveillance System and a number of specialised surveillance systems. It also facilitates and coordinates communicable disease control activities where a national response is required.

To complement the Communicable Diseases Network–Australia New Zealand (CDNANZ), the Public Health Laboratory Network (PHLN) was established in 1997 as a collaborative group of laboratories nominated by State and Territory health departments. They have expertise in public health microbiology and are major providers of public health laboratory services. The aim of the PHLN is to provide strategic advice, define priorities and share expertise at the national level in order to enhance the national capacity for the laboratory based surveillance and outbreak management of communicable diseases in Australia.

## Australian non-government

### Australian Drug Foundation

The Australian Drug Foundation (ADF) is an independent, non-profit organisation working to prevent and reduce alcohol and drug problems in the Australian community. The ADF's core business is to provide information to public and professional groups and practical assistance to organisations and communities. This is done by:

- assisting schools to develop programs designed to educate teachers, parents and students;
- using media and other communications techniques to influence public policy, law and legislation;
- conducting research and managing projects for local, State and national clients; and
- assisting communities wishing to develop projects and campaigns aimed at addressing alcohol and drug abuse.

The ADF offers a number of services, including:

- DRUGinfo, a service available to the Victorian public that provides general information about alcohol and drug use;
- an extensive library and information service that is available to professionals from a variety of fields; and
- sponsorship of arts and sporting events to reach young people and adults with messages about alcohol and other drugs.

### Australian Kidney Foundation

The Australian Kidney Foundation is a national charity. Its mission is to be recognised as the leading non-profit organisation providing funding for, and taking initiative in, the prevention of kidney and urinary tract diseases.

The Foundation aims to achieve this mission by:

- funding medical research and training;
- conducting a broad-based education program for patients, potential organ donors, medical practitioners, the general community and school students;
- pursuing initiatives that will improve patient services, preventative medicine and health promotion;
- informing government of the needs of patients, and commenting authoritatively on relevant public issues; and
- engaging in selected and managed fundraising programs.

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4 The data relating to psychiatric hospitals should be treated with caution due to different reporting practices across jurisdictions and years. Any queries should be directed to the Australian Institute of Health and Welfare.



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## Introduction

The term ‘education’ has traditionally been used to denote the processes of obtaining knowledge, aptitudes, skills, or socially valued qualities of character and behaviour. Education is regarded as a lifelong process, initiated at birth, developed in schooling and subsequent formal pathways of learning, and continued thereafter. ‘Training’ is a more specific type of learning, whereby certain skills are developed for subsequent application in the workplace. The value of training lies in its practical relevance.

Historically, education has usually been conducted in formal institutions such as schools and universities, while training occurred in vocationally focused institutions or in the workplace. However, in recent times the distinction between education and training has been diminishing, with education extending beyond the formal institutions, and training extending beyond vocational institutions and the workplace. For example, Adult and Community Education provides an education service to people of all ages outside the confines of formal institutions. Conversely, training is becoming available in schools, with senior secondary school students able to study for vocational certificates as part of their school work. Both education and training are now perceived to be parts of a lifelong learning process that enables individuals to take their places in a skilled and changing labour force, to lead fulfilling lives, and to become active members of the community.

## Commonwealth and State government responsibilities in education and training

The governments of the six Australian States and the two Territories have the major responsibility for education and training, including the administration and substantial funding of primary and secondary education, as well as the administration and major funding of technical and further education (TAFE). They administer these systems through government departments and agencies responsible to State or Territory Ministers. The Commonwealth Government also plays a significant role in education and training policy, programs and funding. Total government outlays on education and training in 1997–98 were \$25,082m (see later section, *Expenditure on education*), which represented 4.4% of Gross Domestic Product.

The Commonwealth Government also has direct responsibility for education in the Australian Territories (Norfolk Island, Christmas Island and the Cocos (Keeling) Islands) under the Minister for Sport, Territories and Local Government. It has special responsibilities for Aboriginal and Torres Strait Islander people, migrants, international relations in education, and assistance for students. The States and Territories also receive special grants from the Commonwealth Government for areas of particular need.

The Commonwealth Government is principally responsible for the funding of higher education institutions, and provides supplementary funding for schools and for TAFE. Apart from its significant financial role, the Commonwealth is also involved in promoting national consistency and coherence in the provision of education and training across Australia.

## Preschool education

All States and Territories have a policy of making preschool education available for children in the year prior to school entry. However, there is no national policy on the provision of preschool education and there are considerable differences in the regulation, administration and organisation of preschools between the States and Territories. The age at which children may attend preschool varies between three and five years, reflecting the different school commencement ages in each State or Territory.

In recent years, the differences between preschool and long day care centres have become less distinct, with many long day care centres offering a preschool program as part of their services and some preschools extending their hours. These circumstances have made it difficult to clearly determine the number of children attending preschool.

However, in the 1996 Census of Population and Housing, one-third of all children aged 3–5 years were reported as attending preschool. This may include children who attended long day care centres.

Preschool attendance among 3 year olds was highest in New South Wales (34%), which also has the lowest primary school entry age. Similarly, 5 year olds were most likely to be attending preschool in Queensland (52%) and Western Australia (48%), which have older entry ages for primary school.

**10.1 CHILDREN AGED 3–5 YEARS, By Whether Attending Preschool—1996**

State/Territory	Children aged 3–5 years who attended preschool				All children aged 3–5 years
	3 year olds	4 year olds	5 year olds	Total	
	%	%	%	%	%
New South Wales	34.0	57.0	16.3	35.7	100.0
Victoria	15.4	50.6	27.8	31.3	100.0
Queensland	8.3	37.3	52.0	32.6	100.0
South Australia	13.1	49.5	48.2	37.1	100.0
Western Australia	15.1	65.3	6.9	29.2	100.0
Tasmania	7.7	28.4	25.7	20.7	100.0
Northern Territory	6.9	58.6	14.5	26.6	100.0
Australian Capital Territory	9.2	63.5	25.3	32.8	100.0
<b>Australia(a)</b>	<b>19.7</b>	<b>51.0</b>	<b>28.6</b>	<b>33.1</b>	<b>100.0</b>

(a) Includes other Territories.

Source: 1996 Census of Population and Housing published in *Children, Australia: A Social Report (4119.0)*.

## Primary and secondary education

### School attendance

School attendance is compulsory throughout Australia between the ages of 6 and 15 years (16 years in Tasmania). Most children start primary school at about five years of age.

Each State and Territory has developed its own approach to schooling, particularly in relation to the structure of pre-Year One education and the transition from primary to secondary schooling. Primary schooling in most States and Territories begins with a preparatory or kindergarten year, followed by six or seven primary grades, then a further five or six years to complete a full secondary course of study. In total, most States and Territories have 13 years of schooling (except Queensland and Western Australia, which have 12). While the final two years of schooling generally fall outside the compulsory stage of education, in 1998 some 85% of students remained at school until Year 11 and 72% remained until Year 12.

### School organisation and operation

Primary schooling provides a general elementary program lasting for seven or eight years until Year 6 or 7. Students enter secondary schools at Year 7 in some State systems and at Year 8 in others. Usually primary and secondary schools are separate institutions, but in some country areas there are central or area schools which provide both levels of schooling. In Tasmania and the Australian Capital Territory, attendance for the final two years of government schooling is at separate secondary colleges.

Primary and secondary education is generally comprehensive and coeducational in both government and non-government schools. Nevertheless, a significant, though declining, proportion of non-government secondary schools are single sex institutions.

Generally, schools in Australia have a considerable degree of autonomy. Most State departments have established regional administrations which are responsible for matters such as planning school buildings and deploying staff, while a central curriculum unit provides general guidelines on course planning. In general, individual schools determine teaching and learning approaches within the given guidelines and offer various course options. In terms of assessment, some States have a completely school-based system, while others combine school-based assessment with external examinations.

### Curriculum, assessment, benchmarks and targets

Curriculum development in Australia is the responsibility of the State and Territory Governments. The Commonwealth Government plays an important role in promoting equity and social justice policies in the delivery of education, and encouraging national collaboration on school curriculum, assessment and reporting matters. The Commonwealth also has a national leadership role (for the content and delivery of school curriculum and the assessment of student learning outcomes) in responding to the challenges posed by the effects of globalisation and developments in information technology on the social and economic life of all Australians.

Between 1989 and 1993 the Commonwealth, States and Territories collaborated to develop curriculum statements and profiles in each of eight agreed learning areas: English, mathematics, science, technology, studies of society and the environment, the arts, health and physical education, and languages other than English. The statements provide an account of the aims and content of each area of learning as a framework for curriculum development in primary and secondary schooling. The profiles provide a broad outline of a sequence of students' development of knowledge, understanding and skills as a framework for assessing and reporting student progress and achievements.

All States and Territories are using the statements and profiles in some form for curriculum development, while incorporating variations which reflect local policies and priorities. The profiles reflect, and provide the basis for, the growing adoption in school systems throughout Australia of outcomes based on approaches to teaching, learning and assessment, and reporting to parents and the wider community.

A recently completed review of Australia's national goals for schooling in the twenty-first century provides the basis for States and Territories and the Commonwealth to collaborate further on the development of targets for student learning outcomes. Those goals were announced in April 1999 with the release of the *Adelaide Declaration on National Goals for Schooling in the Twenty-first Century*.

### Primary schooling

In early primary education, the main emphasis is on the development of basic language and literacy skills, simple arithmetic, moral and social education, health training and some creative activities.

In the upper primary years the focus is on development of the skills learned in earlier years. English, mathematics, social studies, science, music, art and craft, physical education and health are studied. There are also optional subjects such as religious instruction, foreign and community languages, and instrumental music.

### Secondary schooling

In secondary education, in some systems the first one or two years of secondary school consist of a general program which is followed by all students, although there may be some electives. In later years, a basic core of subjects is retained, with students being able to select additional optional subjects. In other systems, students select options from the beginning of secondary school.

In senior secondary years, a wider range of options is available in the larger schools and there is an increasing trend towards encouraging individual schools to develop courses suited to the needs and interests of their students, subject to accreditation and moderation procedures. There is also an increasing emphasis on the incorporation of vocational programs into the senior secondary curriculum. Under the Australian Vocational Training System, students at school may obtain vocational education and training sector certificates as part of their senior study and undertake some parts of their programs in the workplace.

Examinations and assessments at each level are carried out by individual schools, although external examinations exist in some systems at the Year 10 and/or Year 12 levels. Students reaching the minimum school leaving age may leave school and seek employment, or enrol in a vocational course with a TAFE institution or with another vocational education provider, such as a private business college. For many TAFE courses, completion of Year 10 of secondary school is a minimum entry requirement. For those continuing to the end of secondary school (Year 12), opportunities for further study are available in higher education institutions, TAFE institutions and other tertiary institutions. Students' eligibility to enter higher education institutions is assessed during, or at the end of, the final two years of secondary schooling.

### Schools, students and teaching staff

Of the 9,587 schools operating in Australia in August 1998, 6,998 (73%) were government schools and 2,589 (27%) were non-government schools. There were 146,031 full-time equivalent (FTE) teaching staff employed in government schools, and a further 63,048 employed in non-government schools (see table 10.2).



**10.2 SCHOOLS, STUDENTS AND TEACHING STAFF—1998**

	Government schools	Non-government schools				All schools
		Anglican	Catholic	Other	Total	
	no.	no.	no.	no.	no.	no.
Schools	6 998	130	1 694	765	2 589	<b>9 587</b>
Students						
Males	1 144 801	50 893	316 670	114 859	482 422	<b>1 627 223</b>
Females	1 094 574	46 931	313 449	116 478	476 858	<b>1 571 432</b>
Persons	2 239 375	97 824	630 119	231 337	959 280	<b>3 198 655</b>
FTE of teaching staff(a)						
Males	49 851	3 362	12 306	6 609	22 277	<b>72 128</b>
Females	96 180	4 460	25 696	10 616	40 771	<b>136 951</b>
Persons	146 031	7 821	38 002	17 225	63 048	<b>209 079</b>

(a) Full-time teaching staff plus full-time equivalent (FTE) of part-time teaching staff.

Source: *Schools, Australia* (4221.0).

**10.3 STUDENTS, By Category of School and Sex**

	1993	1994	1995	1996	1997	1998
	no.	no.	no.	no.	no.	no.
Government schools						
Males	1 141 627	1 133 490	1 129 599	1 136 634	1 140 874	1 144 801
Females	1 086 429	1 081 448	1 078 254	1 084 923	1 089 178	1 094 574
Persons	2 228 056	2 214 938	2 207 853	2 221 557	2 230 052	2 239 375
Non-government schools						
Males	439 003	445 751	454 324	464 109	473 898	482 422
Females	431 316	438 691	447 160	457 349	467 674	476 858
Persons	870 319	884 442	901 484	921 458	941 572	959 280
All schools						
Males	1 580 630	1 579 241	1 583 923	1 600 743	1 614 772	1 627 223
Females	1 517 745	1 520 139	1 525 414	1 542 272	1 556 852	1 571 432
Persons	3 098 375	3 099 380	3 109 337	3 143 015	3 171 624	3 198 655

Source: *Schools, Australia* (4221.0).

In 1998, 3,198,655 students were attending primary and secondary schools on a full-time basis, comprising 2,239,375 (70%) in government schools and 959,280 (30%) in non-government schools. The number of students attending government schools increased by 9,323 (0.4%) from the previous year while the number of students attending non-government schools increased by 17,708 (1.9%) (see table 10.3).

Table 10.4 shows the number of students in 1998 by level of education. Of all primary school students, 27% went to non-government schools

compared with 35% of all secondary school students. One-fifth of all school students went to non-government Catholic schools (19% of primary school students and 21% of secondary school students).

Graph 10.5 shows the proportion of government and non-government schools, as well as proportions of students and school staff (full-time teaching staff plus full time equivalents of part-time teaching staff) in government and non-government schools.

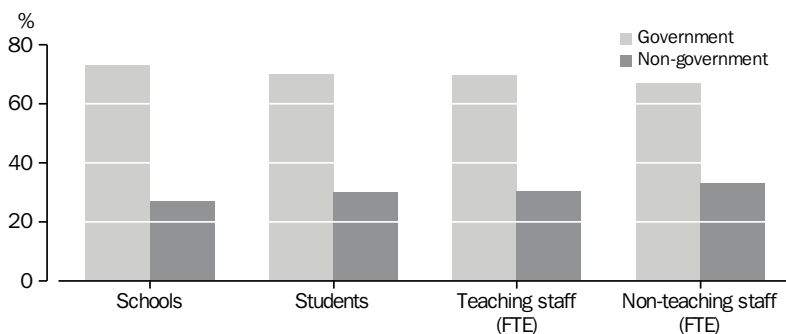
## 10.4 NUMBER OF STUDENTS, By Level of Education(a)—1998

Level/year of education	Government schools	Non-government schools				All schools		
		Anglican	Catholic	Other	Total	Males	Females	Persons
	no.	no.	no.	no.	no.	no.	no.	no.
<b>Primary</b>								
Pre-year 1(b)	139 422	2 832	39 371	11 030	53 233	98 824	93 831	192 655
Year 1	197 462	4 018	50 736	14 935	69 689	137 546	129 605	267 151
Year 2	196 185	3 800	51 418	14 608	69 826	136 181	129 830	266 011
Year 3	192 181	4 302	50 316	14 525	69 143	133 906	127 418	261 324
Year 4	189 920	4 613	49 406	14 803	68 822	132 284	126 458	258 742
Year 5	185 868	5 296	48 551	15 338	69 185	130 095	124 958	255 053
Year 6	184 178	5 814	48 272	15 909	69 995	130 265	123 908	254 173
Year 7 (Qld, SA, WA, NT)	74 154	2 716	15 435	6 925	25 076	50 941	48 289	99 230
Ungraded	13 060	9	320	2 124	2 453	10 009	5 504	15 513
<i>Total primary</i>	<i>1 372 430</i>	<i>33 400</i>	<i>353 825</i>	<i>110 197</i>	<i>497 422</i>	<i>960 051</i>	<i>909 801</i>	<i>1 869 852</i>
<b>Secondary</b>								
Year 7 (NSW, Vic., Tas., ACT)	101 210	6 675	35 735	13 098	55 508	80 033	76 685	156 718
Year 8	169 553	11 659	53 718	23 073	88 450	131 734	126 269	258 003
Year 9	168 587	11 819	52 350	22 227	86 396	130 001	124 982	254 983
Year 10	163 499	12 187	51 287	22 622	86 096	126 379	123 216	249 595
Year 11	137 386	11 512	44 087	20 692	76 291	104 087	109 590	213 677
Year 12	110 022	10 543	38 443	18 226	67 212	83 738	93 496	177 234
Ungraded	16 688	29	674	1 202	1 905	11 200	7 393	18 593
<i>Total secondary</i>	<i>866 945</i>	<i>64 424</i>	<i>276 294</i>	<i>121 140</i>	<i>461 858</i>	<i>667 172</i>	<i>661 631</i>	<i>1 328 803</i>
<b>Total</b>	<b>2 239 375</b>	<b>97 824</b>	<b>630 119</b>	<b>231 337</b>	<b>959 280</b>	<b>1 627 223</b>	<b>1 571 432</b>	<b>3 198 655</b>

(a) From 1990 students attending special schools have not been separately identified and have been allocated to either primary or secondary level of education. (b) Pre-year 1 does not exist in Queensland or Western Australia.

Source: *Schools, Australia* (4221.0).

## 10.5 PERCENTAGE OF SCHOOLS, STUDENTS, AND SCHOOL STAFF (FTE(a))—1998



(a) Full-time teaching staff plus full-time equivalent of part-time teaching staff.

Source: *Schools, Australia* (4221.0).

## Other schooling arrangements

Children may be exempted from the requirement of compulsory attendance at a school if they live too far from a school or suffer a physical disability. These children receive tuition through a variety of educational delivery mechanisms, including distance education, Schools of the Air, and use of computer and facsimile technologies.

Children of some Indigenous groups in remote areas of the Northern Territory, who have moved away from larger centres into small decentralised communities called outstations or homeland centres, receive schooling from Indigenous teaching assistants supported by visiting teachers from established schools.

Special education is provided by State and Territory Governments and non-government authorities in specialist schools, in special classes or units in regular schools, or by withdrawal from regular classes for periods of intensive assistance by special staff. In all States and Territories, and particularly in New South Wales, Queensland and Victoria, parents have formed voluntary organisations to establish additional schools catering for their children's special needs. The Commonwealth Government provides funds to State, Territory and non-government authorities and community groups to assist in the provision of services and upgrading of special education facilities.

Boarding facilities are available at some non-government schools, mainly in the larger towns and cities. A small number of government

schools, in particular those catering for groups such as Indigenous people, have residential hostels close by.

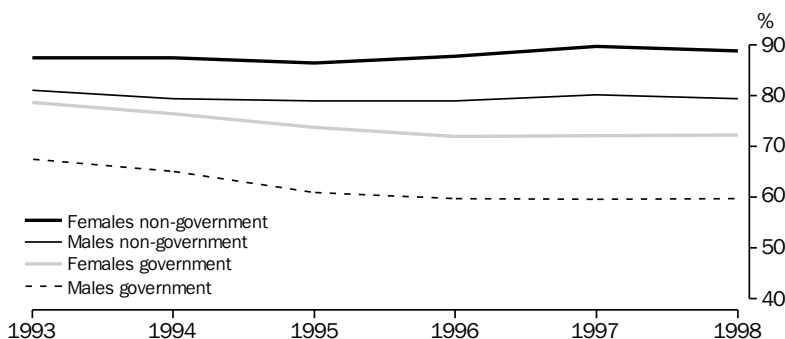
## Apparent retention rates

Apparent retention rates are an important measure of the performance of education systems and related government policies. The apparent retention rate is an estimate of the percentage of students of a given cohort who continued to a particular level or year of education. In graph 10.6, apparent retention rates have been calculated for full-time students who continued to Year 12 from their respective cohort group at the commencement of their secondary schooling.

The apparent retention rate of secondary school students to Year 12 fell from 77% in 1993 to 72% in 1998. The rate varied across States and Territories, ranging from 43% in the Northern Territory to 91% in the Australian Capital Territory. The apparent retention rate decreased between 1993 and 1998 in all States and Territories, except for an increase in Tasmania. As in previous years, the apparent retention rate for female students (78%) was higher than the corresponding rate for males (66%).

Care should be taken in interpreting apparent retention rates since a range of factors affecting their calculation has not been taken into account. At the national level these include the effects of students who repeat a year of education, migration, and changing characteristics of the school population, such as the growing number of full-fee paying overseas students.

**10.6 APPARENT RETENTION RATES  
TO YEAR 12**



Source: *Schools, Australia* (4221.0).

Comparisons between government and non-government schools should be made with caution because of the net transfer of students from government to non-government schools, which tends to inflate the apparent retention rates in non-government schools and reduce the government school rates.

### Funding of schools

In 1997–98, Australian governments outlaid \$14,780m on primary and secondary education, and a further \$1,386m on preschool and other special education. They also spent large sums on other aspects of schooling such as transporting students. State, Territory and local governments provided 71% (down from 74% in 1996–97) of government funding for preschool, primary, secondary, and other special education, and all of the government costs of student transportation.

Data published by the Ministerial Council on Education, Employment, Training and Youth Affairs show that in 1997, non-government schools derived 44% of their income from private sources, 38% from the Commonwealth Government, and 18% from State grants. Non-government schools operate under conditions determined by government authorities, usually registration boards, in each State and Territory. These conditions require that minimum education standards are met and that the schools have satisfactory premises. The majority of non-government schools are Catholic, and there is a Catholic Education Commission in each State and Territory and at the national level. Most other non-government schools are under the auspices of, or run by, other religious denominations.

Primary and secondary education is free in government schools in all States and Territories. However, fees may be charged for the hire of text books and other school equipment (particularly in secondary schools) and voluntary levies may be sought from parents.

Most State Governments provide financial assistance to parents for educational expenses, under specified conditions. Assistance includes various types of scholarships, bursaries, transport and boarding allowances, many of which are intended to assist low-income families. The Commonwealth Government also provides a number of schemes of assistance to facilitate access to education.

### Tertiary education

Tertiary education is mainly provided through universities, TAFE institutions and other Vocational Education and Training institutions such as secretarial colleges, theological colleges, and private business and commercial colleges.

There are 41 higher education institutions to which operating grants were provided by the Commonwealth Department of Education, Training and Youth Affairs (DETYA) in 1999, as well as the Australian Film, Television and Radio School, the National Institute of Dramatic Art and the Australian Defence Force Academy. There are also two private universities which provide teaching at the higher education level, Bond University in Queensland and Notre Dame University in Western Australia.

Apart from the Australian National University and the Australian Maritime College, which are established under Commonwealth legislation, Australian universities operate under State or Territory legislation. They are autonomous bodies responsible for their own governance and make their own decisions on, for example, allocation of funding, staffing, and academic courses.

Most vocational education and training (VET) in Australia is provided in government-administered colleges, generally referred to as Colleges of Technical and Further Education (TAFE). To a lesser extent, VET may also be provided by: Institutes of Technology; some higher education institutions; schools and agricultural colleges; adult and community education authorities; private providers of education (such as business colleges); and employers. In 1998, there were 92 TAFE and other government institutes, with 1,039 provider locations, delivering VET training. A further 575 community centres and 1,912 other registered providers delivering VET were, at least partly, publicly funded.

The Commonwealth Government and the State Governments established a national vocational education and training system in 1992. Under this system, the Ministerial Council on Employment, Education, Training and Youth Affairs (MCEETYA) chaired by the Commonwealth Minister, determines national policy and priorities, strategic directions, funding arrangements and planning processes for vocational education and training, on the advice of the Australian National Training Authority (ANTA). Under the national system, State training agencies manage the delivery of vocational education and training in a manner consistent

with the national strategic plan. These agencies are accountable to their State Ministers for operational matters, and to the Ministerial Council on matters of national policy.

### Higher education

Most higher education institutions are funded by the Commonwealth under the *Higher Education Funding Act 1988*. In 1997, the operating revenue of these institutions amounted to \$8,218m, 54% of which came from Commonwealth Government grants. Commonwealth Government funding is also provided to higher education institutions through various research programs, mostly on the advice of the Australian Research Council (ARC).

In addition to government funding, institutions receive payments from students who are required to contribute to the cost of their education through the Higher Education Contribution Scheme (HECS), and from other fee paying students. Higher education fees and charges have increased in importance in recent years. In 1997, 15% of operating revenue was raised from HECS, while other fees and charges accounted for a further 15% of income. The corresponding figures for 1996 were 12% from HECS, and 13% from other fees and charges. Other higher education income sources include investments, State Government grants, donations and bequests.

Table 10.7 shows the number of higher education staff; in 1998 there were almost equal proportions of women and men. This has changed significantly over the last decade; in 1988 some 57% of all higher education staff were male.

Higher education staff may be classified as academic or non-academic; in 1998 there were more non-academic than academic staff. The largest numbers of academics were at the lecturer and senior lecturer levels.

While there were more male than female academics in 1998, the proportions were closer than they were a decade earlier. In 1988, 73% of academics were men, compared to 65% in 1998. At all academic levels except 'above senior lecturer's, the proportion who were women had substantially increased and, at the 'below lecturer' level, women outnumbered men.

The basic undergraduate course at most institutions is a bachelor degree course of three or four years' duration. At some institutions, courses may also be offered at the diploma or advanced diploma level. Most institutions also offer postgraduate level study. One to two years of full-time postgraduate study are required for a master's degree and three to five years for a doctoral degree. Postgraduate diplomas and certificates are offered in some disciplines. In 1998, 76% of higher education students were enrolled in bachelor courses, with a further 20% enrolled in higher degree and other postgraduate courses (see table 10.8). Candidates for master's degrees (by research or coursework) were the largest single group among post-graduate students (9% of all higher education students).

Higher education institutions offer a great variety of courses embracing such areas as agriculture, architecture, arts, business, dentistry, economics, education, engineering, health, law, medicine, music, science and veterinary science. Fields of study with the largest numbers of award course students in 1998 were Business, administration and economics (26%); Arts, humanities and social sciences (25%); and Science (16%) (see table 10.8).

**10.7 HIGHER EDUCATION STAFF, By Classification and Sex—1988 and 1998**

	1988				1998			
	Males	Females	Persons	Persons	Males	Females	Persons	Persons
	%	%	%	no.	%	%	%	no.
Academic staff								
Above senior lecturer	86.8	13.2	100.0	5 172	85.5	14.5	100.0	6 489
Senior lecturer	85.9	14.1	100.0	6 652	73.3	26.7	100.0	8 047
Lecturer	67.3	32.7	100.0	9 966	57.2	42.8	100.0	11 464
Below lecturer	50.0	50.0	100.0	4 768	47.9	52.1	100.0	6 663
Total academic staff	72.7	27.3	100.0	26 558	64.9	35.1	100.0	32 663
Non-academic staff	45.1	54.9	100.0	37 042	39.5	60.5	100.0	43 609
<b>Total</b>	<b>56.6</b>	<b>43.4</b>	<b>100.0</b>	<b>63 600</b>	<b>50.4</b>	<b>49.6</b>	<b>100.0</b>	<b>76 272</b>

Source: Department of Education, Training and Youth Affairs.

## 10.8 HIGHER EDUCATION STUDENTS, By Level of Course and Field of Study—1998

	Agriculture, animal husbandry	Architecture, building	Arts, humanities and social sciences	Business, administration, economics	Education
	no.	no.	no.	no.	no.
Higher doctorate	—	—	12	0	76
Doctorate	843	277	6 565	2 265	2 581
Master's by research	388	228	3 722	656	1 185
Master's by coursework	191	701	7 661	21 007	7 845
Postgraduate qualifying/preliminary	8	69	152	250	34
Graduate (post) diploma— new area	244	459	4 512	6 249	8 028
Graduate (post) diploma— extension area	88	222	1 300	2 347	2 214
Graduate certificate	135	385	616	4 114	1 222
Bachelor's graduate entry	0	706	896	59	4 419
Bachelor's honours	119	95	5 485	1 079	295
Bachelor's pass	6 570	12 144	128 815	129 681	43 184
Advanced diploma	1 283	10	708	336	405
Diploma	1 690	73	1 067	346	327
Other award course	252	0	505	1 826	159
<b>Total courses</b>	<b>11 811</b>	<b>15 369</b>	<b>162 016</b>	<b>170 215</b>	<b>71 974</b>

	Engineering, surveying	Health	Law, legal studies	Science	Veterinary sciences	All students
	no.	no.	no.	no.	no.	no.
Higher doctorate	1	105	12	0	0	206
Doctorate	2 370	3 367	403	6 603	167	25 441
Master's by research	1 190	1 009	136	1 831	56	10 399
Master's by coursework	2 200	6 438	2 024	3 914	73	51 932
Postgraduate qualifying/preliminary	46	285	19	132	0	981
Graduate (post) diploma— new area	458	3 657	623	3 140	8	27 344
Graduate (post) diploma— extension area	344	3 073	439	1 093	1	11 121
Graduate certificate	472	1 247	476	506	0	9 151
Bachelor's graduate entry	2	1 334	1 762	113	0	9 291
Bachelor's honours	988	721	412	4 106	17	12 629
Bachelor's pass	41 090	54 849	23 685	82 346	1 384	488 963
Advanced diploma	100	37	0	468	0	3 347
Diploma	95	816	1 234	579	0	6 227
Other award course	514	81	699	680	0	4 716
Enabling courses	62	64	2	227	0	3 965
<b>Total courses</b>	<b>49 932</b>	<b>77 083</b>	<b>31 926</b>	<b>105 738</b>	<b>1 706</b>	<b>(b)671 853</b>

(a) DETYA changed the method of compiling these data in 1998. Students undertaking Combined courses are now counted in each field they are studying. Because of this, the field of study components will not necessarily add to All students. (b) Includes students in non-award courses.

Source: Department of Education, Training and Youth Affairs (DETYA), 'Selected Higher Education Student Statistics, 1998'.

The proportion of higher education students who were female rose slightly from 53% in 1993 to 55% in 1998 (Table 10.9). Higher education students were predominantly in the younger age groups; 60% were less than 25 years old in 1998.

Most higher education institutions provide full-time and part-time courses. In addition, some institutions offer courses which associate full-time study with periods of employment. External or distance education courses are also offered.

In 1998, 59% of students were enrolled in full-time study, 27% in part-time study and 13% in external studies. Between 1993 and 1998, the total number of students rose by 17%. However the greatest rate of growth (41%) was among those studying externally (see table 10.10).

Students can also enrol in higher education courses through Open Learning Australia (OLA). In 1998 there were 6,423 students enrolled in OLA programs.

**10.9 HIGHER EDUCATION STUDENTS(a), By Age and Sex**

	1993	1994	1995	1996	1997	1998
	no.	no.	no.	no.	no.	no.
19 and under						
Males	68 660	69 757	70 683	73 151	76 017	76 554
Females	90 794	91 958	93 997	98 639	102 354	104 823
Persons	159 454	161 715	164 680	171 790	178 371	181 377
20–24						
Males	92 101	92 415	94 182	97 331	100 953	103 040
Females	97 397	98 810	101 455	106 550	112 814	117 327
Persons	189 498	191 225	195 637	203 881	213 767	220 367
25–29						
Males	35 397	36 239	37 661	39 963	42 496	43 987
Females	33 671	35 051	37 858	41 306	44 384	46 705
Persons	69 068	71 290	75 519	81 269	86 880	90 692
30 and over						
Males	71 828	73 568	76 294	79 427	80 706	80 793
Females	85 769	87 598	92 047	97 727	99 103	98 624
Persons	157 597	161 166	168 341	177 154	179 809	179 417
Total						
Males	267 986	271 979	278 820	289 872	300 172	304 374
Females	307 631	313 417	325 357	344 222	358 655	367 479
Persons	575 617	585 396	604 177	634 094	658 827	671 853

(a) Includes students in enabling and non-award courses.

Source: Department of Education, Training and Youth Affairs, 'Selected Higher Education Student Statistics, 1998'; and unpublished data, Higher Education Student Collection.

**10.10 HIGHER EDUCATION STUDENTS, By Type of Enrolment and Sex**

	1993	1994	1995	1996	1997	1998
	no.	no.	no.	no.	no.	no.
<b>INTERNAL</b>						
Full-time						
Males	160 357	161 374	165 288	171 680	179 098	180 082
Females	183 222	183 615	189 996	200 636	212 356	217 191
Persons	343 579	344 989	355 284	372 316	391 454	397 273
Part-time						
Males	79 548	80 212	80 767	81 259	82 819	84 590
Females	88 534	91 213	92 928	95 431	96 804	99 759
Persons	168 082	171 425	173 695	176 690	179 623	184 349
<b>EXTERNAL</b>						
Males	28 081	30 393	32 765	36 933	38 255	39 702
Females	35 875	38 589	42 433	48 155	49 495	50 529
Persons	63 956	68 982	75 198	85 088	87 750	90 231
<b>TOTAL</b>						
Males	267 986	271 979	278 820	289 872	300 172	304 374
Females	307 631	313 417	325 357	344 222	358 655	367 479
Persons	575 617	585 396	604 177	634 094	658 827	671 853

Source: Department of Education, Training and Youth Affairs, 'Selected Higher Education Student Statistics, 1998'.

## Vocational education and training

### Vocational Education and Training institutions

Primary responsibility for administration of the TAFE system lies with the State and Territory Governments. Operating revenue is provided primarily by the those governments (59% in 1998), with additional funds being provided by the Commonwealth Government (23%). The balance of revenue (18%) came from fee-for-service activities, ancillary trading, and student fees or charges.

All States and Territories charge most students some form of administration fee for TAFE courses. This varies according to the type of course and its duration. Nationally, in 1998 around 4% of operating revenue for TAFEs was provided by student fees and charges. Another 9% was received from full-fee paying overseas clients, employers and other individuals or organisations.

TAFE institutions offer a wide range of non-vocational and vocational training programs, ranging from recreation and leisure, through basic employment and educational preparation to trades, para-professional and professional levels. Training programs are classified according to 12 fields of study on the basis of similar vocational (or non-vocational) emphasis or subject matter

orientation. These are broadly consistent with the fields of study covered by higher education institutions.

Table 10.11 shows the number of VET teachers working in TAFEs and at other training providers in 1998–99. Of all VET teachers, 54% were employed full-time and, of all full-time VET teachers, 63% were male. In contrast, 62% of part-time VET teachers were female.

### 10.11 VOCATIONAL EDUCATION TEACHING STAFF—1998–99(a)

	Full-time staff	Part-time staff	All teaching staff
	'000	'000	'000
Males	9.9	5.2	15.1
Females	5.7	8.2	13.9
Persons	15.6	13.3	28.9

(a) Average over the financial year.

Source: Unpublished data, Labour Force Survey.

Table 10.12 shows participation in publicly-funded vocational education and training programs. While there were more males than females in VET courses overall and in the younger ages, from the age group 30–39 years on there were more women undertaking VET courses than men. The majority of VET clients were enrolled in TAFE institutions.



**10.12 VOCATIONAL EDUCATION AND TRAINING(a) CLIENTS(b), Streams 2100–4500(c)—1998**

	Males	Females	Persons(d)
Age group	'000	'000	'000
Under 16	15.9	13.0	28.9
16	31.1	25.4	56.6
17	39.2	29.4	68.6
18	47.7	35.5	83.3
19	44.2	31.5	75.8
20–24	136.6	105.8	242.6
25–29	95.0	85.1	180.4
30–39	155.0	155.3	310.8
40–49	107.2	130.4	238.0
50–59	50.5	58.0	108.7
60–64	9.2	9.6	18.8
65 and over	9.2	10.3	19.6
Not stated	33.1	37.3	103.3
<b>Total</b>	<b>773.8</b>	<b>726.7</b>	<b>1 535.2</b>

(a) Includes all VET delivery by TAFE and other government providers, registered community providers, some VET delivered in schools, and publically-funded delivery by private providers. Fee for service by private providers has been excluded. (b) A client is any individual participating in a specific enrolment or training contract with a specific organisation. (c) Courses leading to a vocational award. (d) Total persons exceeds the sum of the sexes because sex was not stated for 34,711 students.

Source: National Centre for Vocational Education Research, 'Australian Vocational Education and Training Statistics, 1998: In Detail'.

Table 10.13 shows the number of course enrolments in each field of study in 1998. Clients may be enrolled in more than one activity. The more popular fields of VET study include: Business administration and economics; Engineering and surveying; and Services, hospitality and transportation. Enrolments in the Services, hospitality and transportation field of study in 1998 increased by 14% over 1997. Increased enrolments were seen in most streams, with enrolment declining only in Arts, humanities and social sciences.

**Apprenticeships and traineeships**

An amount of \$207m was provided in the 1996–97 Budget to establish New Apprenticeships over the period to 1999–2000. New Apprenticeships expand apprenticeship and traineeship opportunities beyond traditional occupations into industries with new growth and employment potential. They provide national qualifications and can be accessed through Australian Workplace Agreements, Certified Agreements or Industry Awards.

Some 64% of all apprentices and trainees in training at 30 June 1998 were in the broad occupational group Trades and related workers, including Construction (12%) and Automotive trades (12%). Another 16% of apprentices and trainees were in Intermediate clerical, sales and service occupations, and 7% were Labourers and related workers (table 10.14).

**10.13 VOCATIONAL EDUCATION AND TRAINING COURSE ENROLMENTS, Streams 2100–4500 by Field of Study—1998**

	Preparatory	Operative	Trades and skilled	Professional and para-professional	Total enrolments(a)
	'000	'000	'000	'000	'000
Land and marine resources, animal husbandry	26.0	20.5	58.8	4.3	109.7
Architecture, building	1.3	20.4	62.3	9.8	93.6
Art, humanities and social sciences	57.4	14.9	33.6	28.6	134.4
Business administration, economics	9.3	75.6	209.7	93.6	388.1
Education	4.8	4.9	30.4	5.0	45.2
Engineering, surveying	20.0	36.1	179.4	28.2	263.7
Health, community services	12.1	39.5	77.7	29.9	159.3
Law, legal studies	0.1	0.4	4.0	6.7	11.2
Science	4.7	84.6	30.4	18.9	138.5
Veterinary science, animal care	0.2	1.1	1.3	0.3	2.9
Services, hospitality, transportation	7.1	59.2	132.5	16.7	215.4
TAFE multi-field education	321.3	45.1	7.3	0.9	374.7
<b>Total Clients(b)</b>	<b>400.4</b>	<b>355.9</b>	<b>771.7</b>	<b>222.5</b>	<b>1 535.2</b>

(a) Excludes recreation and leisure courses. (b) Components do not add to total as clients could participate in more than one field/course.

Source: National Centre for Vocational Education Research, 'Australian Vocational Education and Training Statistics, 1998: In Detail'.

**10.14 APPRENTICES AND TRAINEES, In Training at 30 June 1998**

	'000	% of total
Managers & administrators	2.4	1.2
Professionals	1.5	0.8
Associate professionals	6.6	3.4
Trades & related workers		
Mechanical & fabrication engineering	20.9	10.7
Automotive	23.2	11.8
Electrical & electronic	17.1	8.8
Construction	24.3	12.4
Food	17.1	8.7
Skilled agricultural & horticultural workers	3.2	1.6
Hairdressers	9.6	4.9
Other	9.5	4.9
Total	124.7	63.8
Advanced clerical & services	0.2	0.1
Intermediate clerical, sales & service	31.6	16.1
Intermediate production & transport	3.5	1.8
Elementary clerical, sales & service	10.1	5.1
Labourers & related workers	14.9	7.6
<b>Total</b>	<b>195.5</b>	<b>100.0</b>

Source: National Centre for Vocational Education Research, 'Australian Apprentice & Trainee Statistics, 1997–1998, Annual Statistics Vol. 4'.

**Employer related training**

Employers may provide training themselves or they may use an external training provider to deliver either in-house or external training. The majority (89%) of employers who provided structured training used some type of external training provider (table 10.15), the most common being TAFE, with 43% of employers who provided structured training using TAFEs.

Private training providers were the most common type of providers used by large (those with 100 or more employees) and medium employers (those with 20–99 employees)—46% and 30% respectively—while small employers (those with 1–19 employees) were most likely to use TAFE (30%).

**10.15 USE OF EXTERNAL PROVIDERS FOR STRUCTURED TRAINING IN LAST 12 MONTHS—1997**

	Employer Size			Employers providing structured training
	1–19 employees	20–99 employees	100 or more employees	
	%	%	%	%
External training providers used at least once(a)				
Used external training provider				
TAFE	41	44	68	43
University	10	22	56	14
Private training provider	27	51	79	34
Professional association	24	33	54	27
Industry association	15	34	49	20
Equipment manufacturer	19	34	48	23
Other	6	*8	4	6
Employers using external training providers	88	91	97	89
Did not use external providers	12	*9	**	11
Total	100	100	100	100
External training provider used most often				
Used external training provider				
TAFE	30	23	20	28
University	5	**	4	5
Private training provider	16	31	46	20
Professional association	15	9	8	13
Industry association	7	9	10	8
Equipment manufacturer	10	9	7	10
Other	*5	*7	*2	5
Employers using external training providers	88	91	97	89
Did not use external providers	12	*9	**	11
Total	100	100	100	100

(a) An employer may use more than one type of provider.

Source: *Employer Training Practices, Australia, February 1997* (6356.0).

## Education and training characteristics of the population

### Educational attainment

In May 1998, 5.2 million people aged 15–64 (42% of this population) had completed a recognised post-school qualification. A further 6.5 million (53% of this population) had no recognised post-school qualification, and the remaining 0.7 million people (5%) were still at school (see table 10.16).

Of those with post-school qualifications, 1.4 million (27%) held a skilled vocational qualification (such as a trade qualification), the most commonly reported qualification. Bachelor degrees were reported by a further 1.3 million persons (25%). The smallest category comprised

those with a higher degree, reported by 0.2 million people (4% of those with post-school qualifications).

The most common post-school qualification reported by 15–24 year olds was a basic vocational diploma, but fewer 15–24 year olds held post-school qualifications than any other age group. In comparison, 25–34 year olds were the age group most likely to hold qualifications, the most common qualifications being bachelor degrees and skilled vocational (30% and 27%, respectively, of all with post-school qualifications). From the age group 35–44 years on, skilled vocational qualifications were the most common post-school qualifications.

## 10.16 PERSONS AGED 15–64, By Educational Attainment—May 1998

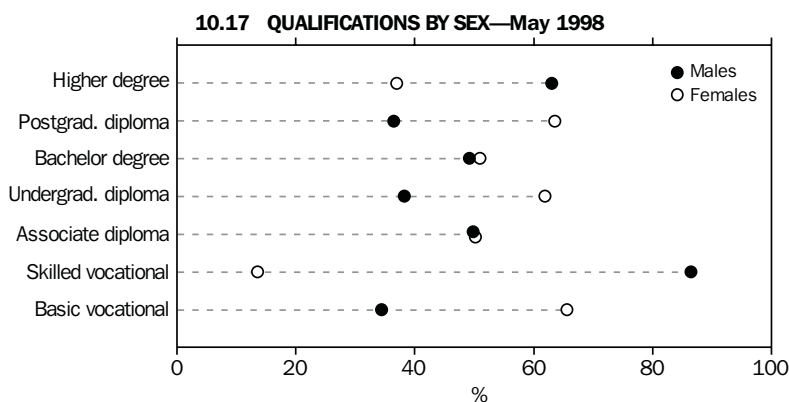
	Age group (years)					Total
	15–24	25–34	35–44	45–54	55–64	
Educational attainment	'000	'000	'000	'000	'000	'000
With post-school qualifications						
Higher degree	*3.6	44.1	83.0	69.5	25.8	226.0
Postgraduate diploma	11.3	63.9	76.7	67.9	29.8	249.6
Bachelor degree	143.6	439.9	362.9	241.7	104.9	1 292.9
Undergraduate diploma	57.6	140.9	171.3	156.6	75.6	602.0
Associate diploma	58.1	110.8	93.5	74.1	33.3	369.8
Skilled vocational	128.0	391.6	377.0	281.7	202.0	1 380.4
Basic vocational	181.1	276.3	276.0	218.0	100.6	1 052.1
Total	583.3	1 467.5	1 440.4	1 109.5	572.0	5 172.8
Without post-school qualifications						
Completed highest level of school						
Attending tertiary in May 1998	506.6	80.7	29.5	12.5	*2.3	631.6
Not attending tertiary in May 1998	358.0	436.9	355.4	299.3	195.1	1 644.6
Total	864.5	517.5	384.9	311.7	197.5	2 276.2
Did not complete highest level of school						
Attending tertiary in May 1998	121.1	49.0	42.1	22.9	5.6	240.8
Not attending tertiary in May 1998	408.0	802.9	970.7	985.7	805.2	3 972.6
Total	529.1	851.9	1 012.8	1 008.6	810.8	4 213.3
Total(a)	1 394.0	1 371.9	1 399.2	1 324.1	1 012.8	6 502.0
Still at school	662.4	*2.3	*0.6	*0.6	*0.2	666.1
<b>Total</b>	<b>2 639.8</b>	<b>2 841.7</b>	<b>2 840.2</b>	<b>2 434.2</b>	<b>1 585.0</b>	<b>12 340.9</b>

(a) Includes persons who never attended school.

Source: Transition from Education to Work, Australia (6227.0).

Graph 10.17 shows the distribution between males and females for each category of post-school qualifications in May 1998. Women were more likely to have qualifications at the

basic vocational, undergraduate diploma, and postgraduate diploma levels. Men were more likely to have qualifications at the skilled vocational and higher degree levels.



Source: Unpublished data, Transition from Education to Work survey.

## Participation in education

While participation in education may occur at any age, many people obtain some qualifications in the years immediately after completing school. Depending on whether or not they plan to obtain tertiary education (as well as the type they wish to undertake) some leave school immediately after completing compulsory schooling (until 15 years of age, or 16 in Tasmania) while others go on to complete Years 11 and 12. Table 10.18 shows that in 1998, 51% of 15–19 years olds were still at school while a further 25% were in tertiary education. In all, 68% of 15–19 year olds were either still at school or were in full-time tertiary education.

By the age group of 20–24 years there was a substantial decline in the proportion of people participating in education, with 30% of this age group in tertiary education. However of those in education, a higher proportion were in full-time than part-time education (61% and 39%

respectively). From the mid-twenties on, few people participate in education and of those that do, most are part-time.

## Educational attendance and the labour force

In May 1998, almost 2 million people aged 15–64 years attended an educational institution, either part-time or full-time, in order to obtain a recognised qualification (table 10.19). Of these, 62% were participating in the labour force—that is, they were employed or unemployed.

Most people attending an educational institution full-time were either not in the labour force (55%) or were employed part-time (36%). On the other hand, most people attending an educational institution part-time were employed full-time (70%). There were 28,700 persons who combined full-time study and full-time employment.

**10.18 PERSONS AGED 15–64, Education Participation Rates—May 1998**

	Age (years)				
	15–19	20–24	25–44	45 and over	All 15–64
	%	%	%	%	%
Attending					
School	50.8	*0.3	*0.0	*0.0	5.4
Tertiary					
Full-time	17.5	18.3	2.1	0.3	4.9
Part-time	7.2	11.6	6.1	2.3	5.6
Total tertiary	24.7	29.9	8.2	2.6	10.5
Total attending	75.5	30.2	8.2	2.6	15.8
Not attending	24.5	69.8	91.8	97.4	84.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Unpublished data, *Transition from Education to Work*.

**10.19 PERSONS AGED 15–64, Whether Attended an Educational Institution(a) and Labour Force Status—May 1998**

Labour force status	Attended an educational institution			Not attending	Total
	Full-time	Part-time	Total		
NUMBER					
In the labour force					
Employed					
Full-time	29	486	515	5 716	6 231
Part-time	455	117	572	1 622	2 194
Total	483	603	1 087	7 338	8 425
Unemployed	82	35	117	618	736
<i>Total</i>	566	638	1 204	7 956	9 160
Not in the labour force	700	52	751	2 429	3 181
<b>Total</b>	<b>1 265</b>	<b>690</b>	<b>1 955</b>	<b>10 386</b>	<b>12 341</b>
PER CENT					
Unemployment rate	15	6	10	8	8

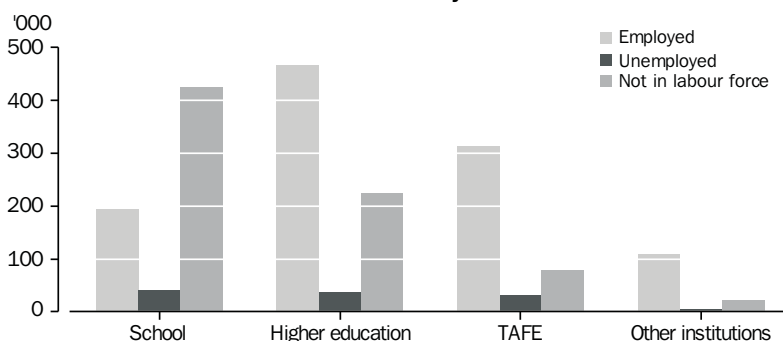
(a) To study for a recognised qualification.

Source: *Transition from Education to Work, Australia* (6227.0).

Graph 10.20 indicates the labour force status of students aged 15–64 studying in May 1998 to gain a recognised educational qualification. Almost two-thirds of school students were not in the labour force (64%), while almost one-third (29%)

were employed. In contrast, only one-quarter (25%) of tertiary students were not in the labour force, and almost three-quarters (69%) were employed.

**10.20 PERSONS AGED 15–64 ATTENDING AN EDUCATIONAL INSTITUTION—May 1998**



Source: *Unpublished data, Transition from Education to Work survey.*

## Training participation and the labour force

In the 12 months prior to the 1997 Survey of Education and Training, 78% of people aged 15–64 years, and employed at the time of the survey, undertook some form of training, as did 53% of unemployed people (table 10.2). In particular, 70% of employed people received on-the-job training and 21% completed an external training course. Of all people employed as wage and salary earners at the time they received external training, 68% received employer assistance to participate in a training course.

Of all employed people, 14% had enrolled to study for an educational qualification in 1996. However they made up over three-quarters (77%) of all enrolments. Also, nearly a quarter (24%) of people who were not in the labour force, and 16% of unemployed people, had enrolled to study for an educational qualification in 1996.

The extent of participation in study or training courses varied considerably according to employment status, ranging from 21% of those who were marginally attached to the labour force (that is, those who were not in the labour force at the time of the survey but wished to work and were able to start work within four weeks) to 55% of persons who were wage or salary earners (graph 10.22).

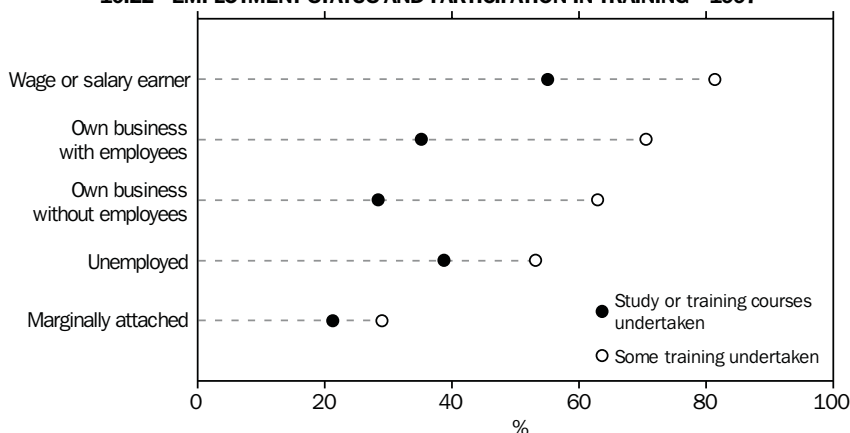
**10.21 PERSONS AGED 15–64 YEARS(a), Profile for Labour Force Status, Education and Training in the Previous 12 Months—1997**

	In the labour force			Not in the labour force			Persons	
	Employed	Unemployed	Total	Marginally attached	Not marginally attached	Total	Total	Total
	'000	'000	'000	'000	'000	'000	'000	%
Some training undertaken(b)(c)	6 471.4	397.3	6 868.7	221.9	303.2	525.1	7 393.8	71.1
Study or training course undertaken	4 166.2	289.7	4 455.9	162.4	244.8	407.2	4 863.1	46.8
Enrolled to study for an educational qualification in 1996	1 136.3	122.5	1 258.8	83.9	142.1	226.0	1 484.9	14.3
In-house training course	2 493.0	49.6	2 542.6	19.7	37.0	56.6	2 599.2	25.0
External training course	1 704.5	133.3	1 837.8	53.2	29.0	82.2	1 920.1	18.5
Working as a wage or salary earner	1 267.5	32.1	1 299.6	7.0	19.7	26.7	1 326.3	12.8
Employer supported	875.3	13.3	888.6	3.5	12.7	16.2	904.8	8.7
Not employer supported	497.9	20.1	518.0	3.7	7.9	11.6	529.7	5.1
Working but not for wages or salary	330.7	4.4	335.1	1.3	0.8	2.1	337.2	3.2
Not working	125.4	101.2	226.7	45.0	8.5	53.4	280.1	2.7
Only enrolled to study for an educational qualification in 1997	27.6	22.4	50.0	22.7	59.9	82.6	132.5	1.3
On-the-job training	5 809.5	231.6	6 041.1	106.7	129.4	236.2	6 277.3	60.4
No training undertaken	1 586.0	300.3	1 886.4	402.3	66.3	468.5	2 354.9	22.7
Still at secondary school	226.0	48.7	274.6	140.1	231.8	371.9	646.5	6.2
<b>Total</b>	<b>8 283.4</b>	<b>746.3</b>	<b>9 029.7</b>	<b>764.3</b>	<b>601.2</b>	<b>1 365.5</b>	<b>10 395.2</b>	<b>100.0</b>

(a) Comprises persons who had a wage or salary job in the last 12 months, and persons who, at the time of the survey (March to May 1997), were employed, unemployed, marginally attached to the labour force, or in full-time or part-time education. (b) Refers to the 12 months prior to the survey period (March to May 1997). (c) Multi-response categories collected. Therefore components may not add to totals.

Source: Unpublished data, Survey of Education and Training, 1997.

10.22 EMPLOYMENT STATUS AND PARTICIPATION IN TRAINING—1997



Source: *Education and Training Experience, Australia, 1997* (6278.0).

## Adult and community education

Adult and community education (ACE) is the most decentralised of the education sectors. ACE refers to the provision of those general adult education programs and activities which fall outside, but complement, the formal programs and qualification pathways provided by the school, TAFE and higher education sectors. ACE focuses on the provision of learning opportunities at a community level, rather than work-based training.

The range of course providers is widespread and includes commercial training providers, private industry, professional and semi-professional bodies, higher education institutions, TAFE institutions and workers' educational associations.

Courses range from general interest, recreational and leisure activities, personal development, social awareness and craft through to vocational, remedial and basic education. Community-based adult education is open to all, and its non-formal characteristics demonstrate the capacity of the community to develop alternatives to institutionalised education.

The higher education sector plays an integral part in adult education through programs of continuing education in professional development, preparatory skills and general education. The TAFE and community education sectors are the largest providers of adult recreational and leisure courses.

## Government assistance to students

In 1998, the Commonwealth Government changed the way it provided assistance to students. In particular, much of the old AUSTUDY scheme was replaced by the Youth Allowance (see the later section *AUSTUDY and Youth Allowance*). Commonwealth government assistance is summarised in table 10.23. Student numbers should not be totalled, because students may transfer from one student assistance program to another during a year, and some students can receive the Student Financial Supplement Loan in conjunction with one of the other payments (see the later section *Student Financial Supplement Loan*).

10.23 STUDENT ASSISTANCE SCHEMES—1998

Scheme	Students Assistance	
	no.	\$m
AUSTUDY(a)	402 976	697
ABSTUDY	50 495	127
AIC	12 182	27
Student Financial Supplement Loan		
Abstudy	8 433	35
Austudy(a)	45 237	112
Youth Allowance(b)(c)	40 030	120

(a) Only includes the number of students supported and assistance paid until 30 June 1998. (b) Number of students receiving assistance at 30 October 1998. Youth Allowance student numbers should not be added to AUSTUDY student numbers as many students were likely to have been supported (and counted) in both periods. (c) Total amount of assistance paid for the period 1 July to 31 December 1998.

Source: *Department of Education, Training and Youth Affairs (DETYA)*, and *Centrelink*.



## **AUSTUDY and Youth Allowance**

From 1 July 1998, AUSTUDY was replaced by the Youth Allowance for all young people (whether or not they are studying) up to the age of 24, and a new AUSTUDY payment was made available for students aged 25 and over. The Youth Allowance and new Austudy payment are administered by the Department of Family and Community Services, and delivered by Centrelink. These systems aimed to provide an equal opportunity for access to education by all Australians, through provision of financial assistance to support students who could not otherwise continue their studies.

Before the implementation of the Youth Allowance for students, AUSTUDY was the Commonwealth Government's scheme of financial assistance for all secondary and tertiary students aged 16 and over. From 1 January to 30 June 1998, around 403,000 students were assisted under AUSTUDY.

## **ABSTUDY**

ABSTUDY was developed by the Government to encourage Australian Aboriginal and Torres Strait Islander peoples to take full advantage of educational opportunities, to promote equality of education, to be involved in decision-making, and to improve educational outcomes.

The scheme provides financial assistance for eligible Australian Aboriginal and Torres Strait Islander persons who undertake approved secondary or tertiary education courses by full-time study, by correspondence, or by part-time tertiary study. There is also some assistance available to primary students aged 14 or over who live at home.

ABSTUDY pays a living allowance and a number of supplementary benefits. For eligible students, these include school fees, school term allowance, fares allowance for students who have to move away from home to study, an incidentals allowance, and a Pensioner Education Supplement. Some ABSTUDY allowances are not income tested. In 1998, ABSTUDY assisted over 50,000 students.

## **Student Financial Supplement Loan**

The Student Financial Supplement Loan (SFSL), introduced in 1993, gives eligible tertiary students the chance to trade-in all or part of their living allowance in return for a supplement loan of double the amount traded in. The SFSL is now available to eligible tertiary students under ABSTUDY, Youth Allowance, the new AUSTUDY, and the PES. The SFSL is entirely optional. Repayments do not commence until the fifth year of the loan, after which recovery is made by the Australian Taxation Office through compulsory repayments when taxable income exceeds the minimum repayment threshold. The threshold income is \$31,126 for the 1999–2000 financial year.

Some students who are ineligible for the Youth Allowance or ABSTUDY because of parental income can take out a smaller supplement loan. In the period to 30 June 1998, approximately 45,000 Austudy tertiary students received the SFSL. In the second half of 1998, the number of people who received SFSL through the Youth allowance was around 40,000 (these numbers should not be added as most of AUSTUDY tertiary students from the first half of the year would be expected to also receive the loan in the second part of the year). Also throughout 1998, a further 8,400 ABSTUDY tertiary students were paid the SFSL.

## **Assistance for isolated children**

The Assistance for Isolated Children (AIC) scheme helps the families of primary and secondary school students, and tertiary students under 16 years of age, who do not have reasonable daily access to an appropriate government school primarily because of geographic isolation. An 'appropriate school' is a government school which offers the student's level of study, or—if the student has special health-related or educational needs—one which provides access to the facilities, programs, or environment required to fulfil those needs.

All AIC allowances are free of income and assets testing, with the exception of the additional component of the Boarding Allowance. In 1998, the AIC assisted around 12,000 students, and scheme expenditure was approximately \$27m.

## Receipt of assistance for education and training

### Support for education

Students may receive support for their education from employers or from other sources such as the government, family, or union or professional organisations. As table 10.24 shows, over half (51%) of all people enrolled to study for an educational qualification in 1997 received support from one or more sources. Employers provided support to 17% of all students and to 46% of those studying for skilled vocational qualifications. People studying for Bachelor degrees were least likely to receive support from employers (10%), but they were most likely to receive support from other sources (55%).

### Support for training

Of all external training courses undertaken (in the 12 months prior to the 1997 survey), 54% were financially supported by one or more sources, including 45% which were supported by the employer (table 10.25). The courses most likely to be supported by employers were Management and professional courses and Technical and para-professional courses (52% and 51% respectively). Courses least likely to attract support from any source included Induction courses, Trade or craft courses and Sales and personal service courses (45%, 47% and 48% respectively).

**10.24 PERSONS AGED 15–64 ENROLLED FOR A POST-SCHOOL QUALIFICATION(a), Level of Qualification and Source of Financial Support—1997**

	Financial support provided			No financial support provided	Total(c)
	Employer support	Other support	Total(b)		
	'000	'000	'000	'000	'000
Higher degree	31.5	29.3	51.9	46.7	99.3
Postgraduate diploma	22.8	19.6	39.6	39.3	79.0
Bachelor degree	49.8	287.1	331.0	189.0	521.4
Undergraduate diploma	14.3	51.3	64.0	66.3	130.7
Associate diploma	17.3	32.6	47.4	65.1	113.5
Skilled vocational qualification	60.5	28.4	79.5	51.4	130.9
Basic vocational qualification	41.0	64.4	97.9	115.8	213.7
<b>Total(d)</b>	<b>250.4</b>	<b>526.7</b>	<b>736.8</b>	<b>596.5</b>	<b>1 337.7</b>

(a) Excludes persons aged 15 to 20 years who were still at secondary school. Where more than one qualification was enrolled for, details were collected about the most recent. (b) Multi-response categories collected. Therefore, components may not add to totals. (c) Includes some training courses for which employer or other support was not known. (d) Includes persons whose level was not stated or was inadequately described.

Source: Unpublished data, 1997 Survey of Education and Training.

**10.25 EXTERNAL TRAINING COURSES(a) COMPLETED(b), Field of Training and Source of Financial Support—1997**

	Financial support provided			No financial support provided	Total training courses(d)
	Employer support	Other support	Total(c)		
	'000	'000	'000	'000	'000
Management and professional	530.1	87.1	580.8	429.3	1 011.0
Technical and para-professional	189.5	29.6	207.4	161.4	370.2
Trade or craft	91.9	45.6	131.9	147.7	279.5
Clerical or office	55.5	26.6	75.3	46.1	122.7
Sales and personal service	118.8	26.1	140.4	151.6	292.0
Transport, machinery operation and labouring	40.8	22.1	61.4	42.6	104.0
Induction	22.4	*10.1	30.0	36.6	66.6
General supervision	19.1	*5.0	23.7	14.7	38.3
General computing skills	127.7	37.5	161.5	130.0	292.6
General health and safety	114.8	40.5	148.7	108.2	256.9
Other(e)	87.6	59.6	138.7	154.2	294.3
<b>Total</b>	<b>1 398.1</b>	<b>389.7</b>	<b>1 699.9</b>	<b>1 422.3</b>	<b>3 128.3</b>

(a) Estimates relate to a maximum of four training courses per person. Therefore, a person may contribute more than once to a given category and/or to more than one category. (b) Refers to external training courses completed in the 12 months prior to the survey period (March to May 1997). (c) Multi-response categories collected. Therefore, components may not add to totals.

(d) Includes some training courses for which employer or other support was not known. (e) Includes English language, Literacy, Numeracy, Music and arts, and 'Other' training courses.

Source: Unpublished data, 1997 Survey of Education and Training.

## Expenditure on education

This section provides estimated numbers of the magnitude and composition of both government and private expenditure on education, which have been compiled in accordance with national accounting concepts. An explanation of these concepts is contained in *Australian National Accounts: Concepts, Sources and Methods* (5216.0); *Government Finance Statistics: Concepts, Sources and Methods* (5514.0); *Information Paper: Developments in Government Finance Statistics* (5516.0); and *Expenditure on Education, Australia* (5510.0).

The emphasis given to the outlays of the public sector reflects not only the relative importance of that sector in the provision of educational services, but also the lack of detailed information relating to expenditure on educational activities in the private sector. However, the information provided shows the order of magnitude of private sector spending, and also the aggregate supply of education services and facilities.

Table 10.26 presents the total outlays on education by the government and private sectors and their components, and the percentages of Gross Domestic Product (GDP) which they represent, for 1997–98 and preceding years.

## 10.26 GOVERNMENT AND PRIVATE OUTLAYS ON EDUCATION

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
VALUE (\$m)						
Government outlays on education						
Government final consumption expenditure	14 929	15 078	15 589	16 014	17 047	17 713
Gross fixed capital expenditure	1 701	1 663	1 743	1 828	1 952	1 765
Government final expenditure	16 630	16 741	17 332	17 842	18 999	19 478
Grants to non-profit institutions	2 424	2 624	2 842	2 979	3 250	3 631
Grants to persons	1 699	1 760	1 759	1 916	1 865	1 892
Other	110	54	80	26	89	81
Total government outlays on education	20 863	21 179	22 013	22 763	24 203	25 082
Private outlays on education						
Private final consumption expenditure	5 006	5 341	5 679	6 156	6 797	7 569
Gross fixed capital expenditure	449	504	489	559	590	639
Total private outlays on education	5 455	5 845	6 168	6 715	7 387	8 208
Total outlays on education						
Total government outlays	20 863	21 179	22 013	22 763	24 203	25 082
Total private outlays	5 455	5 845	6 168	6 715	7 387	8 208
Less private outlays financed by government	2 424	2 624	2 842	2 979	3 250	3 631
<b>Total outlays on education</b>	<b>23 894</b>	<b>24 400</b>	<b>25 339</b>	<b>26 499</b>	<b>28 340</b>	<b>29 659</b>
Government advances						
Advances to persons and non-profit institutions	17	14	–2	6	5	—
Advances to persons for HECS purposes	584	575	380	532	514	642
Total government advances	601	589	378	538	519	642
Gross Domestic Product(a)	427 772	450 050	474 646	508 246	533 709	565 963
PROPORTION OF GROSS DOMESTIC PRODUCT (%)						
Total government outlays on education	4.9	4.7	4.6	4.5	4.5	4.4
Total final expenditure on education, of which						
Government final consumption expenditure	3.5	3.4	3.3	3.2	3.2	3.1
Private final consumption expenditure	1.2	1.2	1.2	1.2	1.3	1.3
Government gross fixed capital expenditure	0.4	0.4	0.4	0.4	0.4	0.3
Private gross fixed capital expenditure	0.1	0.1	0.1	0.1	0.1	0.1
Total	5.2	5.0	5	4.8	4.9	4.9
<b>Total outlays on education</b>	<b>5.6</b>	<b>5.4</b>	<b>5.3</b>	<b>5.2</b>	<b>5.3</b>	<b>5.2</b>
Total government advances	0.1	0.1	0.1	0.1	0.1	0.1

(a) The figures for the expenditure based estimates of Gross Domestic Product (GDP(E)) are obtained from Australian National Accounts: National Income, Expenditure and Product, March Quarter 1999 (5206.0).

Source: *Expenditure on Education, Australia, 1997–98* (Cat. no. 5510.0).

Total outlays on education rose by 5%, from \$28,340m to \$29,659m, between 1996–97 and 1997–98, but fell slightly as a proportion of GDP from 5.3% to 5.2%.

Total final expenditure on education, comprising government and private final consumption expenditure and gross fixed capital expenditure, rose by 5% from \$26,387m in 1996–97 to \$27,693m in 1997–98. Between those years, government final expenditure rose by 3%, compared with growth of private final expenditure of 11%.

Total government outlays on education (which include payments to the private sector) rose by 4% from \$24,203m to \$25,082m between 1996–97 and 1997–98, but fell slightly as a proportion of GDP from 4.5% to 4.4%.

Government final expenditure on education as a proportion of GDP fell between 1992–93 and 1997–98, from 3.9% in 1992–93 to 3.4% in 1997–98. Private final expenditure on education as a proportion of GDP increased slightly from 1.3% in 1992–93 to 1.4% in 1997–98.

Table 10.27 shows the components of government outlays on education by economic transaction and government purpose in 1997–98.

## 10.27 GOVERNMENT OUTLAYS ON EDUCATION—1997-98

	General government consumption expenditure	Personal benefit payments	Expenditure on new fixed assets	Expenditure on secondhand fixed assets	Other(a)	Inter-sector transfers(b)	Own source outlays(c)
	\$m	\$m	\$m	\$m (net)	\$m	\$m	\$m
PRIMARY AND SECONDARY EDUCATION							
Commonwealth	58	579	—	—	21	3 752	4 410
State and local	9 914	118	688	-13	3 353	-3 752	10 308
<b>Total</b>	<b>9 972</b>	<b>697</b>	<b>688</b>	<b>-13</b>	<b>3 374</b>	<b>—</b>	<b>14 718</b>
TERTIARY EDUCATION							
University							
Commonwealth	28	864	—	—	5	3 768	4 665
State and local	5	3	—	—	-1	171	178
Universities	3 259	43	894	-63	97	-3 938	292
<b>Total</b>	<b>3 292</b>	<b>910</b>	<b>894</b>	<b>-63</b>	<b>102</b>	<b>—</b>	<b>5 135</b>
Technical and further							
Commonwealth	9	229	—	—	64	885	1 187
State and local	2 156	1	276	-11	13	-885	1 550
<b>Total</b>	<b>2 165</b>	<b>230</b>	<b>276</b>	<b>-11</b>	<b>77</b>	<b>—</b>	<b>2 737</b>
Tertiary education n.e.c.							
Commonwealth	61	19	—	—	—	—	79
State and local	62	—	13	—	18	—	93
<b>Total</b>	<b>122</b>	<b>19</b>	<b>13</b>	<b>—</b>	<b>18</b>	<b>—</b>	<b>172</b>
Total tertiary education							
Commonwealth	98	1 112	—	—	68	4 653	5 931
State and local	2 223	4	289	-11	30	-713	1 822
Universities	3 259	43	894	-63	97	-3 938	292
<b>Total</b>	<b>5 580</b>	<b>1 159</b>	<b>1 183</b>	<b>-74</b>	<b>195</b>	<b>2</b>	<b>8 045</b>
PRESCHOOL, SPECIAL AND OTHER							
Commonwealth	116	11	—	—	—	134	261
State and local	1 175	—	22	—	108	-134	1 172
<b>Total</b>	<b>1 291</b>	<b>11</b>	<b>22</b>	<b>—</b>	<b>108</b>	<b>—</b>	<b>1 433</b>
TRANSPORTATION OF STUDENTS							
Commonwealth	—	—	—	—	—	—	—
State and local	702	23	—	—	15	—	740
<b>Total</b>	<b>702</b>	<b>23</b>	<b>—</b>	<b>—</b>	<b>15</b>	<b>—</b>	<b>740</b>
EDUCATION N.E.C.							
Commonwealth	126	—	—	—	1	—	128
State and local	43	1	-13	-28	113	—	115
<b>Total</b>	<b>169</b>	<b>1</b>	<b>-13</b>	<b>-28</b>	<b>114</b>	<b>—</b>	<b>243</b>
TOTAL OUTLAYS							
Commonwealth	398	1 702	—	—	92	8 539	10 730
State and local	14 057	146	986	-52	3 619	-4 599	14 156
Universities	3 259	43	894	-63	96	-3 938	291
Inter-sector taxes	—	—	—	—	—	-95	-95
<b>Total</b>	<b>17 714</b>	<b>1 891</b>	<b>1 880</b>	<b>-115</b>	<b>3 807</b>	<b>-95</b>	<b>25 082</b>

(a) Outlays on education less transfers (e.g. grants and taxes on education paid to or received from sectors). (b) Specific purpose grants from the Commonwealth Government to State Governments and universities, plus taxes paid by universities to State Governments. The amounts concerned are shown as a deduction from outlays in the rows for State Governments, local governments and universities. (c) Outlays on education less specific purpose grants received from other levels of government. In the case of the Commonwealth Government, this simply represents its total outlays, but in the case of State Governments, local governments and universities it represents outlays financed from their own resources and non-specific Commonwealth grants.

Source: *Expenditure on Education, Australia, 1997-98* (5510.0).

## Expenditure on training

For workers and prospective workers, training can improve their chances of finding a job, maintaining their skills or gaining a promotion. For employers, providing training may lead to a more skilled and productive workforce. However, the provision of training involves costs to employers, and to a minority of training participants.

The 1996 Training Expenditure Survey, which covered the period 1 July to 30 September 1996, collected the September quarter expenditure, by employers, on the provision of structured training for their employees. Structured training covers all training activities which have a predetermined plan and format designed to develop employment-related skills and competencies.

Total expenditure by employers on structured training, in the September quarter 1996, was estimated at \$1,179m. The proportion of gross wages and salaries spent on training was significantly higher for large employers (3.2%), than for medium (1.9%) and small employers

(1.2%) (table 10.28). Total expenditure for the same period in 1993 was \$1,103m. However, despite this small increase in total expenditure, employers on average spent less per employee on structured training and provided less hours of training per employee in 1996 than they did in 1993.

The 1997 Survey of Education and Training indicates the costs to participants of training courses for work-related skills. Most people did not pay to attend training courses in the 12 months prior to the survey, with no costs incurred for 85% of the most recent training courses reported. In-house training courses were least likely to impose costs for participation on individuals, with only 4% of people obliged to pay anything for their most recent training course (table 10.29).

Of those who did pay costs for courses, the average costs incurred for the most recent training course was \$333 (table 10.30). The greatest costs per course were incurred by males attending external training courses while not working (\$543 on the most recent training course).

**10.28 TRAINING EXPENDITURE, By Employer Size—July to September 1996**

	Unit	No. of employees			
		1–19	20–99	100 or more	Total
Total training expenditure	\$m	115.0	168.4	895.4	1 178.8
Training expenditure as % of gross wages and salaries	%	1.2	1.9	3.2	2.5
Expenditure per employee	\$	71.3	135.8	255.6	185.5
Training per employee	hours	2.4	3.8	6.5	4.9
Employers providing structured training	% of all employers	13.4	50.5	88.3	17.8

Source: *Employer Training Expenditure, Australia* (6353.0).

**10.29 MOST RECENT TRAINING COURSES COMPLETED IN THE LAST 12 MONTHS(a),  
Whether Incurred Costs—1997**

	External training course						Total	Total
	In-house	While working	While not working	Total	By males	By females		
	'000	'000	'000	'000	'000	'000	'000	%
Incurring costs								
Under \$50	33.2	60.7	14.6	75.3	48.4	60.1	108.5	2.7
\$50 and under \$100	20.8	83.3	14.6	97.9	45.3	73.5	118.8	3.0
\$100 and under \$200	14.9	95.8	18.4	114.3	65.1	64.1	129.2	3.3
\$200 and under \$300	4.3	49.1	10.1	59.2	32.6	30.9	63.5	1.6
\$300 and under \$400	4.5	33.1	6.1	39.2	25.1	18.6	43.7	1.1
\$400 and under \$500	2.7	26.4	4.0	30.4	18.9	14.2	33.1	0.8
\$500 and under \$1000	6.1	39.2	13.5	52.7	36.4	22.3	58.8	1.5
\$1,000 and under \$5,000	1.7	22.5	6.0	28.5	17.6	12.6	30.2	0.8
\$5,000 and over	0.3	4.0	1.1	5.1	4.2	1.2	5.4	0.1
Amount not known	2.9	15.6	1.3	16.9	12.3	7.5	19.8	0.5
Total incurred costs	91.4	429.7	89.8	519.5	306.0	304.9	610.9	15.4
Did not incur costs	2 225.2	952.3	169.0	1 121.2	1 803.2	1 543.2	3 346.4	84.6
<b>Total most recent training course</b>	<b>2 316.6</b>	<b>1 382.0</b>	<b>258.8</b>	<b>1 640.7</b>	<b>2 109.2</b>	<b>1 848.1</b>	<b>3 957.3</b>	<b>100.0</b>

(a) Refers to the 12 months prior to the survey period (March to May 1997).

Source: Unpublished data, Survey of Education and Training.

**10.30 MOST RECENT TRAINING COURSES COMPLETED IN THE LAST 12 MONTHS(a),  
Average Costs Incurred—1997**

	Males	Females	Persons
	\$	\$	\$
In-house training courses	283	92	188
External training courses			
While working	399	290	346
While not working	543	332	416
Total external	419	298	358
<b>Total</b>	<b>399</b>	<b>268</b>	<b>333</b>

(a) Refers to the 12 months prior to the survey period (March to May 1997).

Source: Unpublished data, Survey of Education and Training.

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Open Learning Australia, *<http://www.ola.edu.au>*

National Centre for Vocational Education Research, *<http://www.ncver.edu.au>*

Ministerial Council on Employment, Education, Training and Youth Affairs,  
*<http://www.curriculum.edu.au/mceetya>*

# Educating and training Australia's workers

## Introduction

Gaining a qualification for a predetermined career is not a guarantee of lifelong employment. To keep pace with a changing work environment (see *Australian Social Trends 1997*, 'Changing industries, changing jobs', pp. 93–98), and to help in both getting and keeping a job, many workers study for an educational qualification or participate in training at various times throughout their working lives. This training is often informal while on-the-job, but also includes more formal training, both in and outside of the workplace. Some workers choose to gain an initial or extra educational qualification through studying at a TAFE or business college, or at a university; others begin their studies after being retrenched or having decided on a career change (see *Australian Social Trends 1997*, 'Education and employment', pp. 84–87).

It is also in the interests of employers to have skilled workers. Many employers assist their staff to develop their skills by arranging training within the workplace or supporting employees to gain qualifications at an educational institution.

The 1997 Survey of Education and Training showed that 4 million wage and salary earners held a post-school qualification (54% of all wage and salary earners)—almost 2.1 million held a higher

education qualification (28% of all wage and salary earners), and a further 1.8 million (24%) held a skilled or basic vocational qualification. Women were more likely than men to have a higher education qualification (32% compared to 24%), and less likely to have a vocational qualification (19% and 29%) (table S4.1).

## Recent education trends

The proportion of wage and salary earners who had a post-school qualification increased between 1989 and 1997 from 47% to 54%. Since 1993, the increase in proportions has been more substantial for those with a higher education qualification (from 24% to 28%), than for those with vocational qualifications (from 23% to 24%). The trend towards higher education qualifications looks set to continue, with more enrolments in higher education courses than in vocational courses. In 1997 there were just over one million workers enrolled for a post-school qualification. Over two-thirds of these were enrolled for a higher education qualification, and just over one-quarter for a vocational qualification—similar proportions to those for all students.<sup>1</sup> Some of these were full-time workers undertaking part-time study, such as apprentices or mature-age university students, and others were full-time students with a part-time job, such as young people studying at university.

**S4.1 WAGE AND SALARY EARNERS, Level of Educational Attainment and Enrolment—Selected Years**

	Higher education(a)	Vocational qualification(b)	All qualifications(c)	Total
	%	%	%	'000
With post-school qualifications				
1989	n.a.	n.a.	47.3	6 704.7
1993	24.2	22.8	47.8	7 078.7
1997	27.8	24.4	53.9	7 419.6
Males	23.8	29.0	54.5	3 943.7
Females	32.3	19.2	53.1	3 475.9
Enrolled for post-school qualifications				
1997	9.9	3.8	14.2	7 419.6

(a) Comprises higher degree, postgraduate diploma, bachelor degree, undergraduate diploma or associate diploma. (b) Skilled or basic. (c) Includes persons whose level of post-school qualification was not stated or inadequately described.

Source: Unpublished data, 1997 Survey of Education and Training; Education and Training Experience, Australia, 1997 (6278.0).

**S4.2 WAGE AND SALARY EARNERS, Study or Training Undertaken by Occupation—Selected Years**

	Studied for a post-school qualification in previous year(a)	Training(a)(b)			Total who did any study or training(c)	Total
		On-the-job	In-house	External		
	%	%	%	%	%	'000
Occupation in 1997						
Managers and administrators	12.0	84.2	44.0	35.8	91.9	<b>350.6</b>
Professionals	20.9	89.6	52.2	35.7	95.4	<b>1 343.1</b>
Associate professionals	17.1	80.9	44.6	24.5	89.2	<b>695.5</b>
Tradespersons and related workers	18.0	70.9	25.5	16.4	80.0	<b>912.9</b>
Advanced clerical and service workers	14.4	77.2	31.9	19.6	84.1	<b>289.3</b>
Intermediate clerical, sales and service workers	15.5	75.1	35.8	17.9	84.8	<b>1 488.8</b>
Intermediate production and transport workers	7.8	58.2	24.2	10.8	68.9	<b>727.8</b>
Elementary clerical, sales and service workers	18.8	71.3	26.5	15.1	81.6	<b>778.3</b>
Labourers and related workers	9.1	58.6	15.8	10.9	69.1	<b>833.4</b>
Total in 1997	15.6	74.4	34.2	20.7	83.2	<b>7 419.6</b>
Total in 1993	18.6	81.8	31.3	11.8	85.8	<b>7 078.7</b>
Total in 1989	16.8	71.8	34.9	9.8	79.0	<b>6 704.7</b>

(a) In the 12 months prior to the relevant survey. (b) On-the-job training undertaken, or in-house or external training courses completed. (c) People may undertake more than one study or training course; therefore components may not add to total.

Source: Unpublished data, 1997 Survey of Education and Training; Education and Training Experience, Australia, 1997 (6278.0).

The likelihood of workers undertaking studies, whether for a first or subsequent qualification, varied according to their occupation, partly because some occupations have requirements for formal qualifications while others do not. In general, those in more highly skilled occupations, for example professionals, were more likely to be involved in study or training courses, and to have received employer support, than those in less skilled occupations, such as labourers and related workers.

One in six workers (16%) had studied for a post-school qualification in 1996—more commonly professionals (21%) and elementary clerical, sales and service workers (19%) (table S4.2). Of those who had studied, 61% of the elementary clerical, sales and service workers had studied for a bachelor degree or higher. This suggests that many of them were full-time university students working part-time in lower skilled jobs until they had completed their studies.

## Recent training

In addition to any formal qualifications they might have, many workers receive training while employed. This may be in-house or external training courses, or on-the-job training—the most common type. In 1997, 74% of workers had received on-the-job training during the previous 12 months—similar to the proportions in 1989

(72%), but lower than in 1993 (82%). Those in more highly skilled occupations, such as professionals, were most likely to have received on-the-job training (90%), and those in less skilled occupations, such as intermediate production and transport workers, the least likely (58%).

Participation in external training courses (those undertaken while not working or with other attendees working for a different employer) was less common, with one in five workers receiving this type of training in the previous 12 months (21%). However, this represented a strong increase in external training course participation since 1989, when the participation rate was 10%. It may partly reflect the trend towards outsourcing and contracting of many of the functions previously provided in-house. Levels of participation in in-house training courses were nevertheless similar in 1997 (34%) and 1989 (35%).

## Support for education and training

People enrolled to obtain a post-school qualification may support themselves during their studies, but often obtain additional funding to pay for their education and living expenses. Of all workers enrolled in a post-school program of education in 1997, 24% received financial support from an employer, 18% from family and 16% from government (through payments such as AUSTUDY or the Youth Training Allowance).

Full-time study for a post-school qualification is more commonly undertaken by younger workers (78% were aged 15–24 years in 1997), who usually support themselves with part-time work, and/or government and family assistance. Full-time students were generally more likely to receive support from family and from the government than part-time students. In 1997, 32% of workers studying full-time for a post-school qualification obtained support from the government and 39% from family members. On the other hand, students studying part-time, many of whom will have worked for some time, were more likely to have received support from employers (35%) (table S4.3).

Training for a skilled vocational qualification generally occurs while a student is employed in the field in which the qualification is being attained (often as apprentices or trainees). As a result, workers enrolled in these courses were much more likely to have received employer support (63%) than those enrolled for a bachelor degree (13%). Similarly, people undertaking post-graduate studies usually do so in order to progress further in their chosen career. These courses are generally undertaken by older workers (84% were aged 25 years or more), who were more likely to have received support from their employer (36%) than from other sources.

The 1997 Survey of Education and Training also found that those enrolled for a post-school qualification who received financial support from

their employer were most likely to have received support in the form of fee payments (62%) or paid study leave (50%).

Workers can also improve their skills through undertaking training courses that are related to their employment. Employers are more likely to provide support for courses where the relevance to the skills their staff need is more obvious. Of the 1.5 million workers who undertook external training courses in the 12 months prior to the 1997 Survey, 59% (12% of all workers) received employer financial support.

## Access to education and training

In general, actual or intended involvement in study for an educational qualification or in work-related training differs little between men and women, but decreases with increasing age. In 1997, 94% of workers aged 15–24 years had undertaken some study or training in the 12 months prior to the survey, compared to 73% of those aged 45 years and over. In contrast, the proportion of workers who received employer financial support for external training courses increased with age, up to the 35–44 age group.

Apart from the differences by age, certain groups of people, such as Indigenous Australians or those with a disability, can experience special difficulties in gaining access to education or training opportunities.

### S4.3 WAGE AND SALARY EARNERS ENROLLED FOR POST-SCHOOL EDUCATION(a), Source of Financial Support(b)—1997

	Study status			Level of qualification					Total(c)
	Full-time	Part-time	External	Higher degree and postgraduate diploma	Bachelor degree	Associate or undergraduate diploma	Skilled vocational	Basic vocational	
Source of Support	%	%	%	%	%	%	%	%	%
Employer	5.6	35.0	32.5	35.7	12.6	17.0	63.0	25.4	23.7
Other(d)	67.1	13.8	14.6	23.2	48.7	27.7	21.9	26.8	33.5
Family members	39.3	5.8	4.5	6.6	31.0	13.9	12.4	8.8	17.9
Government	32.2	5.9	6.2	12.1	20.5	13.5	7.9	16.0	15.6
Did not receive support	29.1	55.6	57.3	48.3	40.0	56.8	51.9	52.5	46.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Total	78.4	39.8	19.9	16.1	62.1	45.0	78.8	39.7	50.2

(a) Where more than one post-school qualification was enrolled for, details were collected about the most recent. (b) People could report more than one type of financial support, therefore components may not add to total. (c) Includes persons whose level of post-school qualification enrolled for was not stated or inadequately described. (d) Comprises support from government, family members, union or professional organisations, other and not known.

Source: Unpublished data, 1997 Survey of Education and Training.

Indigenous Australians commonly have had lower levels of participation in post-compulsory education than the rest of the community (see *Australian Social Trends* 1996, 'The education of Indigenous people', pp. 75–78), and in 1997 this was reflected in the lower proportions of Indigenous workers with a post-school qualification (35%) compared to all workers (54%) (table S4.4). Indigenous workers, however, were just as likely as all workers to have undertaken some training or study in the 12 months prior to the 1997 survey (84% and 83% respectively). They were also more likely to be intending to enrol for a post-school qualification in the three years following the survey (22%) than all workers (16%). These results are, in part, affected by the younger age structure of Indigenous workers, with younger workers being more likely than older workers to participate in study or training courses.

Workers without post-school qualifications undertook less study or training courses than those with post-school qualifications (78% versus 88%), and received less employer support for external training courses (7% and 17% respectively). They were also less likely to intend to enrol than those who already held a post-school qualification (13% compared to 20%).

Overseas-born workers whose first language was not English were just as likely to have a post-school qualification as all workers (55% and 54% respectively). For workers who immigrated as adults, this reflects both the immigration selection process, which in part favours those with post-school educational qualifications, and also their older age profile compared to the Australian-born population, giving them more opportunity to have completed a qualification. Overseas-born workers whose first language was not English participated in in-house or external training courses (22% and 14% respectively), but not to the same extent as the general population of workers (34% and 21%). In association with this lower participation in training courses, a lower proportion of overseas-born workers (8%) received employer support for training than all workers (12%). It is not clear whether the lower employer support for training courses is a cause or a consequence of the lower level of participation.

Having a disability did not seem to affect the level of training or education participation of workers, possibly because those who were able to find employment had lower levels of disability than those who were not able to get a job (see *Australian Social Trends* 1997, 'Employment of people with a handicap', pp. 104–108).

#### S4.4 WAGE AND SALARY EARNERS, Indicators of Education and Training Experience and Intentions—1997

Selected population groups	With post-school qualifications	Undertaken some study or training(a)	Had employer financial support for external training	Enrolled for post-school qual. but not completed(b)	Intends to enrol for post-school qual.(c)	Total
	%	%	%	%	%	'000
Males	54.5	82.9	11.8	8.9	16.1	3 943.7
Females	53.1	83.5	12.6	10.2	16.7	3 475.9
Indigenous	34.6	84.0	* 9.1	15.0	21.9	71.1
With post-school qualifications	100.0	87.8	16.6	9.6	19.5	3 997.5
Without post-school qualifications	..	77.8	7.1	9.4	12.7	3 422.0
English not first language(d)	55.5	70.9	8.0	8.2	15.1	851.0
Persons with a disability	52.0	80.2	11.7	9.7	16.8	1 332.5
Persons aged 15–24 years	37.7	93.7	8.0	18.2	26.1	1 545.1
Persons aged 25–34 years	58.6	85.8	13.1	10.4	19.0	2 076.8
Persons aged 35–44 years	59.8	82.5	15.1	6.9	15.1	1 857.8
Persons aged 45–64 years	56.0	72.7	11.7	4.1	7.1	1 939.8
<b>All wage and salary earners</b>	<b>53.9</b>	<b>83.2</b>	<b>12.2</b>	<b>9.5</b>	<b>16.4</b>	<b>7 419.6</b>

(a) In the 12 months prior to the 1997 survey. (b) In the last five years. (c) In the next three years. (d) For persons not born in Australia.

Source: Unpublished data, 1997 Survey of Education and Training; Education and Training Experience, Australia, 1997 (6278.0).

## Appendix

The main source of data for this review is the ABS Survey of Education and Training, a household survey conducted during the period March to May 1997. Some time series data are also provided from the 1993 and 1989 surveys of education and training.

Wage and salary earners (more commonly referred to as 'workers' in this review) are persons aged 15–64 years who had worked as wage and salary earners in the 12 months prior to the surveys (March to May 1997, April to May 1993, or March to July 1989). Persons aged 15–20 years and still at secondary school are excluded in this review.

Post-school education is defined as a course of study through an educational institution, since leaving school, for which an award is conferred upon completion.

Training courses are activities undertaken to obtain, maintain, or improve work-related skills, conducted at a designated time, in a structured

format. On-the-job training, and study for an educational qualification, are excluded.

On-the-job training refers to activities undertaken to improve job skills, such as:

- asking questions of co-workers or colleagues;
- self teaching;
- being shown how to do the job; and
- watching others work.

A skilled vocational qualification requires two to four years' study and is for work in a higher skilled trade or craft. A basic vocational qualification requires one semester to one year's study for those wanting to work at the operative level in various fields (see *Australian Social Trends 1999*, 'Education—definitions and references', pp. 80–81).

## Endnote

1 Australian Bureau of Statistics 1998, *Education and Training Experience, Australia, 1997* (6278.0).



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## Introduction

This chapter provides an overview of the Australian criminal justice system. Where possible, the data presented are based on national crime and justice statistics produced by the Australian Bureau of Statistics. These are sourced from surveys such as the Crime and Safety Survey and administrative by-product collections, covering crimes recorded by police, caseload information for criminal courts, and information on prisoners dealt with by correctional services agencies. The objective of national crime and justice statistics is to standardise data in order to make them comparable across the different systems of criminal law in Australia, and so provide indicators of the level and nature of crime and the activities of criminal justice agencies.

## The criminal justice system

The criminal justice system consists of the State and Commonwealth institutions, agencies, departments and personnel responsible for dealing with the justice aspects of crime, victims of crime, persons accused or convicted of committing a crime, and related issues and processes.

In all States and Territories, two systems of criminal justice exist: the federal criminal justice system, based on offences against Commonwealth laws, and the relevant State system, based on offences against State laws. Criminal law is administered principally through the federal, State and Territorial police forces, the National Crime Authority, the courts and State and Territorial corrective or penal services. There is no independent federal corrective service, and the relevant State or Territorial agencies provide corrective services for federal offenders.

The States and Territories have independent legislative powers in relation to all matters that are not otherwise specifically vested in the Commonwealth of Australia, and it is the statute law and the common law of the States and Territories that primarily govern the day-to-day lives of most Australians.

The States and Territories have powers to enact their own criminal law, while the Commonwealth has powers to enact laws, including sanctions for

criminal offences, in relation to its responsibilities under the Constitution. Thus, in effect, there are nine different systems of criminal law in existence in Australia.

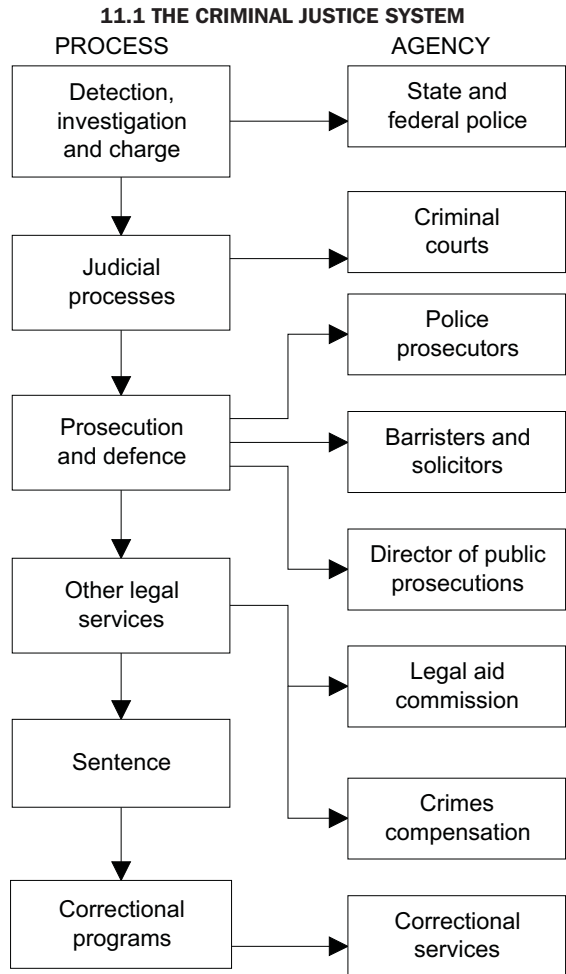
The various agencies that comprise the criminal justice system can be seen as acting within a broader process in which criminal incidents and offenders move through a number of stages. Figure 11.1 indicates these broad stages and the points at which the different justice agencies make their contribution.

Police agencies are responsible for the prevention, detection and investigation of crimes. Where an alleged offender is detected by police, charges may then be laid before a criminal court. The court, consisting of a judicial officer, a jury (in the higher courts), the prosecution and the defence, determines the guilt or innocence of the defendant.

In addition to the court itself, there are a number of other agencies involved in the court process. These include legal representatives for the prosecution and defence. Police Prosecutors are generally responsible for less serious matters heard before courts of summary jurisdiction, while Crown Prosecutors normally handle prosecution of the more serious matters dealt with at the Supreme or Intermediate (District or County) court levels. For defendants, legal aid may be available to handle their defence.

Following the hearing of the charges, in cases where a finding of guilt is made by the court a sentence may be imposed. Fines and bonds are the most common penalties handed down by the courts. The more serious sentences are administered by correctional services agencies. These may include imprisonment, community work of various kinds and some types of bonds. A number of jurisdictions have also introduced new penalties such as home detention or work camps which are also administered by correctional agencies.

For victims of crime, compensation may be available through the courts, and this is normally handled through a special tribunal. The State provides compensation to victims who can demonstrate an injury or suffering as a result of a criminal incident. The State will then seek these funds from the offender, if they have been identified and convicted.



Source: National Centre for Crime and Justice Statistics, ABS.

**Expenditure on public order and safety**

The government sector of public order and safety covers outlays on administration, supervision, support, operation and review of public order and safety affairs and services. Public order and safety include police and fire protection services, law courts and legal services, prisons and corrective services, and other services related to public order and safety.

In 1997–98, \$7.3b (equivalent to \$391 per person) was spent by the Commonwealth Government and the State, Territory and local governments on

public order and safety (see table 11.2). Compared to 1996–97, this represents an increase of 2.6% in total outlays, or \$10 more per person.

11.2 GOVERNMENT EXPENDITURE ON PUBLIC ORDER AND SAFETY			
	1995–96	1996–97	1997–98
Expenditure category	\$m	\$m	\$m
Current outlays	5 875	6 515	6 792
Capital outlays	540	538	532
<b>Total outlays</b>	<b>6 415</b>	<b>7 053</b>	<b>7 324</b>

Source: Government Finance Statistics, Australia, 1997–98 (5512.0).

## The police

Australia is served by eight police forces: one in each State and the Northern Territory, and the Australian Federal Police who are also responsible for policing the Australian Capital Territory. The National Crime Authority also has a policing role.

The principal duties of the police are the prevention and detection of crime, the protection of life and property, and the enforcement of law to maintain peace and good order. They may perform a variety of additional duties in the service of the State, including the prosecution of summary offences, regulation of street traffic, and acting as clerks of petty sessions, Crown land bailiffs, mining wardens and inspectors under the Fisheries and other relevant Acts.

With the exception of the Australian Federal Police and the National Crime Authority, police forces in Australia are under the control of the State Governments and Northern Territory Government, but their members perform certain functions on behalf of the Commonwealth Government, such as the registration of aliens, and in conjunction with the Australian Federal Police and other Commonwealth officers they enforce various Commonwealth Acts and Regulations.

## Commonwealth policing agencies

### Australian Federal Police (AFP)

The AFP is a Commonwealth statutory authority brought into existence by the *Australian Federal Police Act 1979*. The AFP has its headquarters in Canberra. Its Criminal Investigations Program is conducted through six Regional Commands, its Headquarters Investigations Department and its numerous Liaison Officers in many overseas countries.

The AFP is responsible for the prevention, detection and investigation of criminal offences such as drug offences, money laundering and organised crime, identifying the proceeds of crime, and investigation of fraud against Commonwealth revenue and expenditure such as social security fraud and taxation fraud. In the Australian Capital Territory, the AFP provides a full range of general community policing services, including traffic control, special operations, search and rescue services and conventional crime investigations.

### National Crime Authority (NCA)

The NCA was established by the Commonwealth Government in July 1984 through the *National Crime Authority Act 1984*. Similar legislation was passed in each State, the Northern Territory and subsequently the Australian Capital Territory, to underpin the work of the NCA in those jurisdictions, making the NCA the only law enforcement agency in Australia whose investigations are not limited by jurisdictional or territorial boundaries.

The decision to establish the NCA was taken in response to the findings of several Royal Commissions conducted in the late 1970s and early 1980s, which revealed the extent of organised criminal activity in Australia. The NCA's mission is to counteract organised criminal activity and reduce its impact on the Australian community, working in cooperation and partnership with other agencies.

## Size of police forces

The number of sworn police officers in the various Australian police forces is shown in table 11.3. The figures in the table are not directly comparable (for example, the figures for NCA and AFP do not differentiate between full-time and part-time officers, while the figures for the States and Territories are on a full-time equivalent basis).

Further detail on the operations of each force may be found in the police forces' annual reports to their Ministers.

**11.3 SIZE OF POLICE FORCES(a)**

	At 1 July 1997	At 1 July 1998
Police force	no.	no.
National Crime Authority	105	114
Australian Federal Police	2 027	1 931
ACT	647	666
NSW	13 010	13 407
Vic.	10 086	9 750
Qld	6 549	6 813
SA	3 385	3 437
WA	4 744	4 705
Tas.	1 031	1 018
NT	818	866

(a) Includes sworn police officers only.

Source: NCA; AFP (but not for the ACT figure); Queensland Police Service for 1998 Qld figure; Report on Government Services 1999 for all other State and Territory figures.

## National crime statistics

The aim of national crime statistics is to provide comparable data across the States and Territories. These statistics are indicators of the level and nature of reported crime in Australia and provide a basis for measuring changes over time.

Two sources of national statistics provide a picture of crime in Australia: crimes recorded by police, and crime victimisation surveys. Crimes recorded by police relate to offences that have become known to and have been recorded by police. These offences may have been reported by a victim, witness or other person, or they may have been detected by police. These statistics do not provide a total picture of crime, as not all crimes come to the attention of police. In addition, care should be taken in interpreting police statistics, as fluctuations in recorded crime may be a reflection of changes in community attitudes to recording crime, changes in police procedures or changes in crime recording systems, rather than a change in the incidence of criminal behaviour.

To gain a more comprehensive picture of the nature and extent of crime, police statistics are complemented by information from other sources such as crime victimisation surveys. These surveys are conducted on a household basis. Not all types of crime are suitable for measurement by household surveys. No reliable information can be obtained about crimes without specific victims, such as trafficking in narcotics. Crimes of which the victim may not be aware cannot be measured effectively; some instances of fraud and attempted crimes of many types may fall into this category. It may also be difficult to obtain information about some crimes, such as sexual offences and assault by other household members, so that some of these crimes are not fully reflected in the data collected. Finally, no reliable data can be collected by household surveys on crimes against commercial establishments.

In essence, crime victimisation surveys are more suitable for measuring crimes against individuals or households with specific victims who are aware of and recall what happened to them and how it happened, and who are willing to relate what they know.

## Crime and safety

A national household survey on crime and safety was conducted in April 1998. The Crime and Safety Survey was conducted principally to obtain information on the level of victimisation in the community for selected offences. Information was collected from individuals and households about their experience of selected crimes, whether these crimes were reported to police and crime related risk factors. The characteristics of offences refer to the most recent incident experienced by the victim.

For household crimes, information was collected on households that had experienced a break-in to their dwelling, that had found signs of an attempted break-in, and that had any motor vehicles stolen in the 12 months prior to the survey.

For personal crimes, information was collected on individuals who had experienced being physically attacked or threatened with violence when someone stole or tried to steal property from them (robbery), and on individuals who had force or violence used, attempted, or threatened against them (assault) in the 12 months prior to the survey. For females aged

18 years and over, information was also collected on sexual assaults experienced in the 12 months prior to the survey.

The level of victimisation can be measured in more than one way. The most common measure derived from crime victims surveys is *prevalence*, that is, the number of the relevant population that have been victims of a given offence at least once in the reference period.

Rates of prevalence are often used, and these are generally expressed as a percentage of the total relevant population. Prevalence rates are also given as a rate per 1,000 households or persons as relevant.

### How many victims of crime are there?

Households and individuals in Australia experience a diverse range of crimes, only a few of which were covered by the Crime and Safety Survey.

In the 12 months prior to the 1998 Crime and Safety Survey, there were an estimated 349,900 households in Australia which had at least one break-in to their home, garage or shed (graph 11.4 and table 11.5).

About 226,400 households found signs of at least one attempted break-in, and a total of 534,100 households were victims of either a break-in or an attempted break-in in the 12 months prior to the survey.

About 117,900 households experienced at least one motor vehicle theft in the 12 months prior to the survey.

An estimated 79,100 persons aged 15 years and over were victims of robbery and 618,300 persons aged 15 years and over were victims of assault in the 12 months prior to the survey. An estimated 30,100 females aged 18 years and over were victims of sexual assault in the same time period.

### Has the level of crime increased?

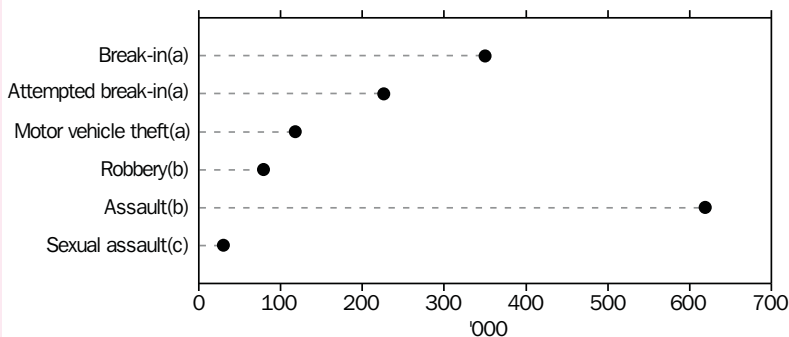
A previous Crime and Safety Survey was conducted by the ABS in 1993. Where data could be compared, the prevalence of victimisation for offences was similar.

The 1998 prevalence rates for household break-ins and attempted break-ins are slightly higher than the rates in 1993 (graph 11.6). The prevalence rates for household motor vehicle theft are much the same.

In 1998 the prevalence rate for sexual assault for females aged 18 years and over was slightly lower than in 1993.

It is not possible to compare the personal crimes of robbery and assault between the 1993 and 1998 surveys because of changes to the questions used in the survey.

**11.4 HOUSEHOLD OR PERSON VICTIMS OF CRIME—12 Months Prior to April 1998**



(a) Households. (b) Persons aged 15 years and over. (c) Females aged 18 years and over.

Source: *Crime and Safety, Australia, April 1998 (4509.0)*.

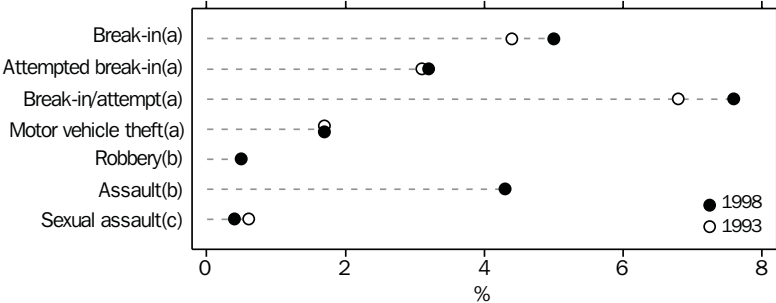
**11.5 VICTIMS OF CRIME—12 months Prior to April 1998**

	Victims '000	Relevant populations '000	Victimisation prevalence rates	
			1993 %	1998 %
Break-in(a)	349.9	7 031.2	4.4	5.0
Attempted break-in(a)	226.4	7 031.2	3.1	3.2
Break-in/attempted break-in(a)	534.1	7 031.2	6.8	7.6
Motor vehicle theft(a)	117.9	7 031.2	1.7	1.7
Robbery(b)	79.1	14 456.0	..	0.5
Assault(b)	618.3	14 456.0	..	4.3
Sexual assault(c)	30.1	6 937.4	0.6	0.4

(a) Households. (b) Persons aged 15 years and over. (c) Females aged 18 years and over.

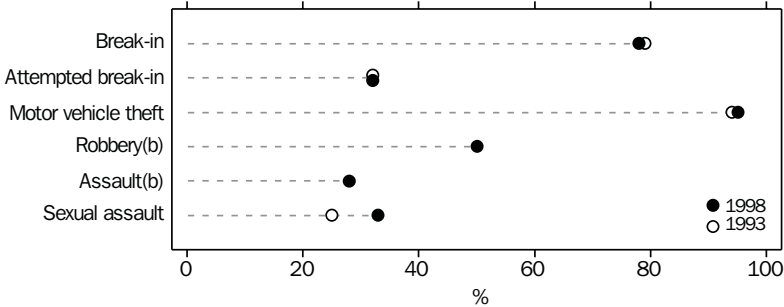
Source: *Crime and Safety, Australia, April 1998 (4509.0)*.

**11.6 VICTIMISATION PREVALENCE RATES—12 Months Prior to April 1993 and 1998**



(a) Households. (b) Persons aged 15 years and over. No 1993 rate has been provided as data are not comparable between 1998 and 1993 surveys. (c) Females aged 18 years and over.  
Source: *Crime and Safety, Australia, April 1998 (4509.0)*.

**11.7 REPORTING RATE(a) TO POLICE FOR THE MOST RECENT INCIDENT—12 Months Prior to April 1993 and 1998**



(a) Of household/person victims. (b) No 1993 rate has been provided as data are not comparable between 1998 and 1993 surveys.  
Source: *Crime and Safety, Australia, April 1998 (4509.0)*.

**How much of this crime is reported to the police?**

Crime is not always reported to the police, and many factors influence whether or not a crime is reported. In particular, rates of reporting to the police vary depending on the type of offence.

For household crimes, the 1993 and 1998 surveys found almost no difference in the level of reporting of the most recent incident to the police (graph 11.7 and table 11.8). In 1998 there was a slightly higher rate of reporting of sexual assaults to the police than in 1993.

Both surveys showed that most vehicle thefts are reported to the police, with over 95% of household victims of motor vehicle theft reporting the most recent theft. The 1998 survey found that there were about 133,700 motor vehicle thefts in the 12 months prior to the survey. Of these, 130,800 became known to the police, a reporting rate of 98% of all motor vehicles stolen.

About 78% of household victims of break-ins reported the most recent incident to the police. Common reasons for not reporting the most recent incident were a feeling that there was nothing the police could do, and that the incident was too trivial.

Half of the victims of robbery reported the most recent incident to the police, the most common reasons for not reporting also being a feeling that there was nothing the police could do, and that the incident was too trivial.

Only 28% of assault victims and 33% of sexual assault victims reported the most recent incident to the police. Common reasons for not telling police about the most recent assault were that the incident was too trivial and that it was a personal matter. These were also common reasons for not reporting sexual assaults.

### How likely am I to be the victim of a crime?

#### Household crime

In the 12 months prior to the 1998 survey, 50 in 1,000 households in Australia were victims of at least one break-in, 32 in 1,000 households were victims of at least one attempted break-in and 76 in 1,000 households were victims of a break-in or attempted break-in, or both. About 17 in 1,000 households were victims of motor vehicle theft in the 12 months prior to the 1998 survey.

One parent households and single person households had higher victimisation prevalence for break-in/attempted break-in. In the 12 months prior to the survey, 113 out of 1,000

single parent households were victims of at least one break-in/attempted break-in, as were 85 out of 1,000 people who lived alone. This compares with 59 out of 1,000 couple only households and 69 out of 1,000 households comprising couples with children, which were victims of a break-in/attempted break-in in the 12 months prior to the survey.

On the basis of logistic regression analysis, each of the following types of households had a significant association with increased risk of break-in, compared to households without these characteristics, when other factors included in the model were held constant:

- one parent households;
- households with dwellings where there were large amounts of motor vehicle traffic in the street;
- households with dwellings next to laneways and bicycle paths;
- households in areas with 10% or more unemployed persons;
- households in areas with 9% or more of males aged 15 to 24 years; and
- households in cities and towns with a population of 8,000 persons or more.

Households with persons aged 55 years and over had a lower risk of break-in victimisation than other households.

### 11.8 REPORTING RATES TO POLICE FOR THE MOST RECENT INCIDENT—12 Months Prior to April 1993 and 1998

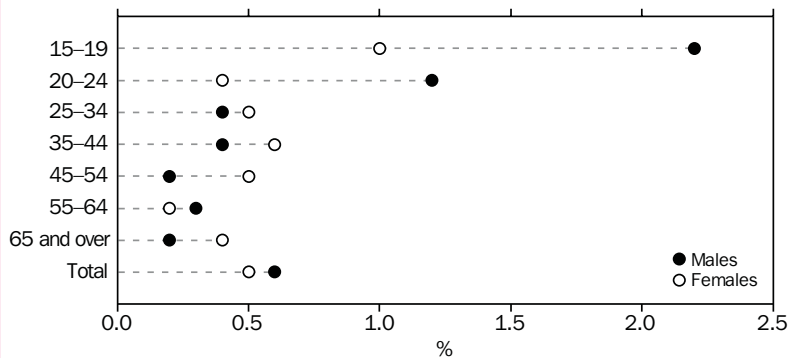
	12 months to April 1998			Reporting rates(a)	
	Told police	Did not tell police	Total victims	1993	1998
	'000	'000	'000	%	%
Break-in(b)	271.0	78.9	349.9	78.5	77.5
Attempted break-in(b)	71.7	154.7	226.4	32.3	31.7
Motor vehicle theft(b)	112.1	5.8	117.9	93.7	95.0
Robbery(c)	39.4	39.7	79.1	..	49.8
Assault(c)	171.3	447.0	618.3	..	27.7
Sexual assault(d)	9.8	20.3	30.1	25.0	32.6

(a) The number of victims who told police about the most recent incident as a percentage of the total number of victims for each offence. (b) Households. (c) Persons aged 15 years and over. (d) Females aged 18 years and over.

Source: *Crime and Safety, Australia, April 1998 (4509.0)*.



11.9 ROBBERY VICTIMISATION RATES—12 Months Prior to April 1998



Source: Crime and Safety, Australia, April 1998 (4509.0).

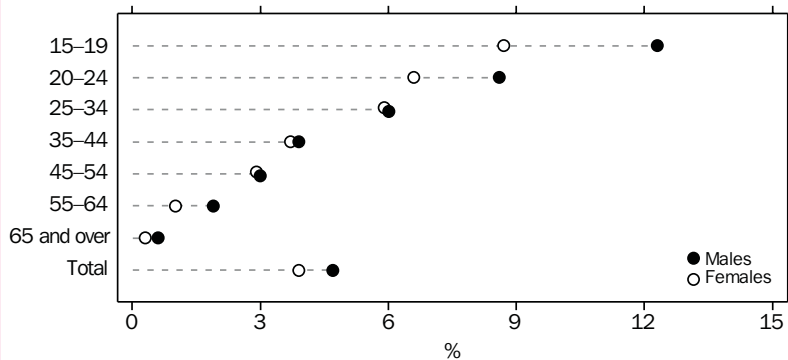
### Personal crime

In the 12 months prior to the 1998 survey, about 5 in 1,000 persons aged 15 years and over were victims of robbery. Young males aged 15–24 years had a relatively high prevalence of victimisation for robbery (22 out of 1,000 males aged 15–19 years were robbery victims, as were 12 out of 1,000 males aged 20–24 years). Young females aged 15–19 years also had a relatively high prevalence of robbery victimisation (10 out of 1,000 females aged 15–19 years were robbery victims) (graph 11.9).

Of persons aged 15–24 years, males were much more likely to be victims of robbery; of persons aged 25 years and over, females were more likely to be victims. For example, 4 out of 1,000 females aged 65 years and over were victims of robbery, compared with 2 out of 1,000 males in the same age group.

About 43 in 1,000 persons aged 15 years and over were victims of assault in the 12 months prior to the survey. Males comprised just over half (54%) of all assault victims, and had higher victimisation prevalence rates than females for all age groups, particularly for those aged under 25 years (graph 11.10).

11.10 ASSAULT VICTIMISATION RATES—12 Months Prior to April 1998



Source: Crime and Safety, Australia, April 1998 (4509.0).

About 4 in 1,000 females aged 18 years and over were victims of sexual assault in the 12 months prior to the survey.

The highest victimisation prevalence rates for sexual assault were for females aged 18 and 19 years (25 in 1,000 women of these ages reported being a victim of sexual assault).

Divorced and separated females aged 18 years and over also reported higher than average levels of sexual assault (12 in 1,000 divorced females and 16 in 1,000 separated females).

### **How likely am I to be assaulted by a stranger?**

Most victims of robbery reported that they were assaulted by a stranger in the most recent incident. About 4 in 1,000 persons aged 15 years and over were robbed by a stranger, and one in 1,000 was robbed by someone they knew.

Most victims, however, were assaulted in the most recent incident by someone they knew (about 27 people in 1,000). Of these, about 10 people in 1,000 were assaulted by a partner, ex-partner or other family member. A further 16 people in 1,000 were assaulted by someone they did not know or did not know personally.

Most females aged 18 years and over who indicated that they had been a victim of sexual assault were assaulted by someone they knew in the most recent incident (about 3 females in 1,000). One female in 1,000 aged 18 years and over was sexually assaulted by someone unknown to her.

### **Where does crime occur?**

The most common location for the most recent incident of robbery was in the street or other open land (34% of all most recent incidents), followed by in homes (21%), at the victim's place of work or study (12%) and at shopping centres (11%).

For the most recent incidents of assault, 24% were classed as family violence, with the offender being a partner or ex-partner of the victim, or a member of the victim's family,

regardless of where the incident occurred. Another 24% of incidents were home based, with an offender other than a partner or ex-partner of the victim, or a member of the victim's family. A further 15% of most recent incidents were classed as work/study violence, 14% as street violence and 12% as pubs/clubs violence.

Some 58% of the most recent incidents of sexual assault occurred in homes, and 14% in the street or open land.

### **Where is the safest place to live?**

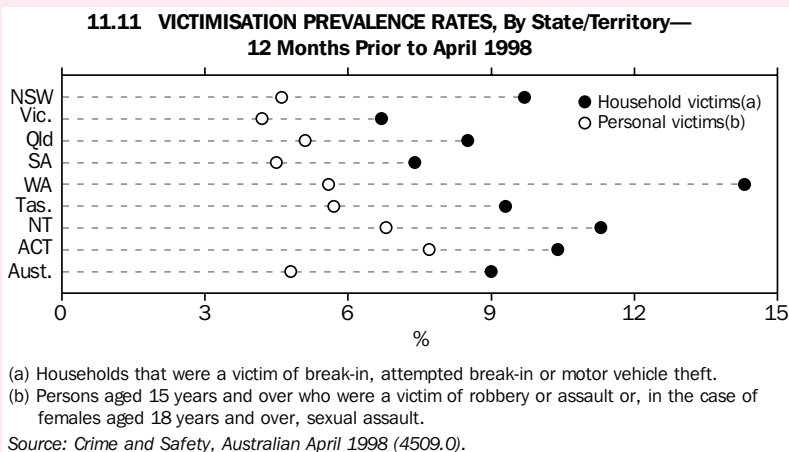
Victoria had the lowest proportions of both household and personal crime victims (graph 11.11). The proportions of household and personal crime victims in South Australia were also relatively low.

Western Australia had the highest proportion of household crime victims, and the Australian Capital Territory had the highest proportion of personal crime victims.

Western Australia had the highest victimisation prevalence rates for break-in and attempted break-in (124 households in 1,000), followed by the Northern Territory (108 households in 1,000) and the Australian Capital Territory (91 in 1,000). Victoria had the lowest prevalence rates for these crimes (53 households in 1,000).

Rates for motor vehicle theft were highest in Western Australia (24 households in 1,000) and New South Wales (21 in 1,000), all other States and Territories having rates lower than the national average (17 in 1,000).

Both the Australian Capital Territory and the Northern Territory generally had high prevalence rates for personal crimes. About 69 people in 1,000 aged 15 years and over experienced at least one assault in the 12 months prior to the survey in the Australian Capital Territory, as did 63 people in 1,000 in the Northern Territory. Victoria had the lowest prevalence rate for assault, with 38 in 1,000 people indicating they had been victims of at least one assault.



**11.12 VICTIMISATION PREVALENCE RATES(a), By State/Territory and Type of Crime—12 Months Prior to April 1998**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	%	%	%	%	%	%	%	%	%
<b>Households</b>									
Break-in	5.3	3.6	5.4	4.0	7.5	5.0	6.3	5.8	5.0
Attempted break-in	3.4	2.1	2.9	2.9	6.0	3.6	5.0	4.0	3.2
Break-in/attempted break-in	7.9	5.3	7.7	6.3	12.4	8.1	10.8	9.1	7.6
Motor vehicle theft	2.1	1.6	1.1	1.2	2.4	1.4	1.2	1.3	1.7
<i>Total household victims(b)</i>	9.7	6.7	8.5	7.4	14.3	9.3	11.3	10.4	9.0
<b>Persons</b>									
Robbery(c)	0.9	0.3	0.3	0.5	0.6	0.6	1.0	0.6	0.5
Assault(c)	3.9	3.8	4.8	4.2	4.9	5.1	6.3	6.9	4.3
Sexual assault(d)	0.3	0.7	0.4	0.3	0.5	0.7	0.6	0.9	0.4
<i>Total personal victims(b)</i>	4.6	4.2	5.1	4.5	5.6	5.7	6.8	7.7	4.8
<b>Victims of household and/or personal offences(b)(e)</b>	<b>13.1</b>	<b>10.4</b>	<b>12.6</b>	<b>11.2</b>	<b>18.2</b>	<b>13.8</b>	<b>17.9</b>	<b>15.6</b>	<b>12.8</b>

(a) Proportion of all households or persons as appropriate. (b) Total is less than the sum of the components as households or persons may be victims of more than one type of offence. (c) Persons aged 15 years and over. (d) Females aged 18 years and over. (e) Persons who were victims of any of the personal crimes or who lived in victim households.

Source: *Crime and Safety, Australia, April 1998 (4509.0)*.

### Concerns about crime and other public nuisance problems in the neighbourhood

Overall 27% of persons aged 15 years and over did not perceive that there were any crime or public nuisance problems in their neighbourhood. However, only 9% of persons who had been victims of the crimes covered in this survey thought that there were no problems in the neighbourhood.

The most commonly perceived problem was 'housebreaking/burglaries/theft from homes', 44% of persons perceiving this as a problem.

Other commonly perceived problems were 'dangerous/noisy driving' (34% of all persons), 'vandalism/graffiti/damage to property' (25%), and 'car theft' (21%).

Persons aged 65 years and over were more likely to perceive that there were no crime or public nuisance problems in their neighbourhood. Fewer people aged 65 years and over perceived any of the issues as problems. For many of the issues, proportionally more people aged 15–19 years perceived them as problems.

## Crimes recorded by police

In 1998 the number of victims recorded by police rose from the previous year for all the offence categories except murder and blackmail/extortion (table 11.13). Nationally, offences against property (unlawful entry with intent, motor vehicle theft and other theft) were far more common than offences against the person (murder, attempted murder, manslaughter, assault, sexual assault and kidnapping/abduction).

### Personal crime

Assault is the most common category of offences recorded against the person. The table shows that police recorded 132,967 victims of assault nationally during 1998, representing a victimisation rate of 709 victims per 100,000 persons. There were 14,568 cases of sexual assault recorded, a rate of 78 victims per 100,000 persons, and 284 cases of murder, a rate of 1.5 victims per 100,000 persons. Males had higher recorded assault rates than females across all age groups and were more likely to be victims of murder, attempted murder and armed robbery. Females had higher recorded sexual assault rates than males across all age groups, with the overall victimisation rate for females for sexual assault more than four times greater than the overall male sexual assault rate. Females were also more likely to be victims of kidnapping/abduction than males.

Nationally, victimisation rates were generally highest for the 15–19 year age group (table 11.14). This age group had the highest victimisation rates for manslaughter, sexual assault, kidnapping/abduction, armed robbery and unarmed robbery. Victims aged 20–24 years had the highest victimisation rates for assault and blackmail/extortion, while victims aged 25–34 years had the highest victimisation rates for murder and attempted murder.

### Property crime

In 1998 there were 435,670 offences nationally recorded by police as relating to unlawful entry into premises with intent. Of these offences, 343,256 (79%) involved either actual or intended taking of property. A further 92,414 offences (21%) were recorded where the unlawful entry was made with the intention to commit some other form of criminal act, such as assault or property damage.

A total of 131,572 motor vehicles were recorded stolen in Australia during 1998. This represents an increase of 1.1% compared with motor vehicle theft in 1997. Other theft includes all recorded theft offences except theft of motor vehicles and theft arising from unlawful entry to a premises, and is the largest category of all property offences. A total of 565,214 other theft offences were recorded in 1998, an increase of 6.5% over 1997.

**11.13 OFFENCES RECORDED BY POLICE, Number and Rate**

Offence category	1996	1997	1998
NUMBER			
Homicide			
Murder	312	321	284
Attempted murder	335	318	382
Manslaughter	38	39	49
Driving causing death(a)	342	n.a.	262
Assault	114 156	124 500	132 967
Sexual assault	14 542	14 353	14 568
Kidnapping/abduction	480	562	662
Robbery			
Armed robbery	6 256	9 054	10 850
Unarmed robbery	10 116	12 251	12 928
Blackmail/extortion	268	360	298
Unlawful entry with intent			
Involving the taking of property	313 902	332 525	343 256
Other	88 177	89 044	92 414
Total	402 079	421 569	435 670
Motor vehicle theft	122 914	130 138	131 572
Other Theft	521 762	530 881	565 214
RATE PER 100,000 POPULATION			
Homicide			
Murder	1.70	1.73	1.51
Attempted murder	1.83	1.72	2.04
Manslaughter	0.21	0.21	0.26
Driving causing death(a)	1.87	n.a.	1.40
Assault	623.54	672.21	709.24
Sexual assault	79.43	77.50	77.71
Kidnapping/abduction	2.62	3.03	3.53
Robbery			
Armed robbery	34.17	48.89	57.87
Unarmed robbery	55.26	66.15	68.96
Blackmail/extortion	1.46	1.94	1.59
Unlawful entry with intent			
Involving the taking of property	1714.60	1 795.39	1 830.91
Other	481.64	480.77	492.93
Total	2 196.24	2 276.17	2 323.85
Motor vehicle theft	671.38	702.65	701.80
Other theft	2 849.97	2 866.37	3 014.83

(a) Complete counts and rate details for the offence Driving causing death are not available for 1997.

Source: *Recorded Crime, Australia, 1997 (4510.0)*; *Recorded Crime, Australia, 1998 (4510.0)*.

**11.14 VICTIMS OF CRIME RECORDED BY POLICE(a), By Age Group (Years) of Victim—1998**

Offence category	0–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65+	Total
<b>MALES</b>										
Murder	1.05	0.45	0.89	1.15	3.19	3.04	2.49	1.23	0.80	1.90
Attempted murder	0.45	—	2.22	4.76	5.96	3.53	2.09	0.86	0.40	2.74
Manslaughter	0.15	—	0.74	0.58	0.55	0.62	0.40	0.12	0.10	0.39
Assault	128.13	699.13	1 616.00	1 627.66	1 474.80	887.23	555.07	308.43	105.68	826.07
Sexual assault	62.39	76.47	57.60	22.35	24.26	8.79	3.21	0.61	0.70	28.14
Kidnapping/abduction	5.16	5.80	5.33	4.04	1.66	0.55	0.64	0.61	0.10	2.43
Armed robbery(b)	1.20	25.59	116.69	95.61	61.89	44.15	36.50	32.16	10.51	44.34
Unarmed robbery(b)	3.96	99.52	285.65	146.08	93.76	54.60	38.90	34.86	20.41	74.55
Blackmail/Extortion(b)	—	1.04	2.96	3.46	1.73	2.01	3.13	1.60	0.70	1.89
<b>FEMALES</b>										
Murder	0.87	—	1.09	1.20	1.59	1.17	1.23	0.62	1.17	1.13
Attempted murder	0.24	0.47	1.72	1.50	1.87	2.55	1.31	0.37	0.31	1.33
Manslaughter	0.24	0.16	0.47	0.15	—	—	0.16	—	0.16	0.14
Assault	88.75	440.90	1 237.46	1 288.75	1056.83	656.89	327.85	144.26	46.88	562.84
Sexual assault	158.45	350.10	411.81	201.29	117.64	62.92	25.40	10.98	5.37	123.59
Kidnapping/abduction	5.67	13.57	15.62	6.74	4.02	1.86	0.74	0.12	0.16	4.40
Armed robbery(b)	0.16	3.59	33.73	43.88	31.54	27.05	24.66	14.73	5.53	20.66
Unarmed robbery(b)	1.02	16.54	79.33	78.48	60.73	51.36	57.20	55.28	49.84	49.74
Blackmail/Extortion(b)	—	0.16	0.78	0.60	1.25	0.76	0.49	0.37	0.23	0.59
<b>PERSONS</b>										
Murder	0.96	0.23	1.06	1.18	2.39	2.11	1.86	0.93	1.01	1.51
Attempted murder	0.35	0.23	1.98	3.16	3.92	3.04	1.70	0.62	0.35	2.04
Manslaughter	0.19	0.08	0.61	0.37	0.28	0.31	0.28	0.06	0.13	0.26
Assault	109.35	575.10	1 436.40	1 466.41	1 270.11	773.90	444.14	227.52	72.83	709.24
Sexual assault	109.27	210.10	230.84	110.49	71.25	35.99	14.27	5.82	3.33	77.71
Kidnapping/abduction	5.41	9.60	10.41	5.36	2.84	1.21	0.69	0.37	0.13	3.53
Armed robbery(b)	0.69	15.00	76.54	70.46	46.86	35.75	30.77	23.70	7.71	33.07
Unarmed robbery(b)	2.53	59.47	185.46	113.07	77.39	53.01	48.15	45.05	37.01	62.89
Blackmail/Extortion(b)	—	0.61	1.90	2.06	1.49	1.41	1.82	0.99	0.44	1.24

(a) Rate per 100,000 population. (b) For Robbery and Blackmail/Extortion where the victim can be an organisation, figures shown only include person victims.

Source: *Recorded Crime, Australia, 1998 (4510.0)*.

## Firearms

Table 11.15 and graph 11.16 show that a weapon was used in 71% of recorded murders in 1998, a slight decrease over 1997. Firearms were used in 19% of both murders and attempted murders in 1998, falls of 4% and 9% respectively over 1997. While the use of firearms decreased or remained

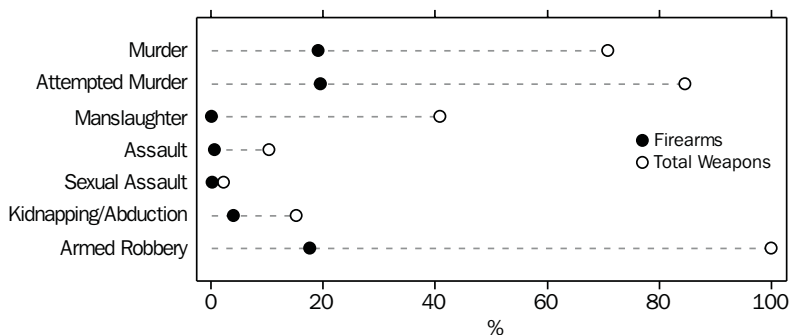
steady for most offences in 1998, the use of other weapons in the commission of offences increased for all offences listed below with the exception of murder. The use of firearms in assaults and sexual assaults remained low (less than 1%).

**11.15 VICTIMS OF REPORTED CRIME(a), By Use of Weapon in Commission of Offence**

	Firearm	Other weapon	Weapon n.f.d.	Total weapons	No weapons	Total
Offence category	%	%	%	%	%	%
<b>1998</b>						
Homicide						
Murder	19.0	48.6	3.2	70.8	29.2	100.0
Attempted murder	19.4	64.7	0.5	84.6	15.4	100.0
Manslaughter	—	40.8	—	40.8	59.2	100.0
Assault	0.5	9.2	0.4	10.2	89.8	100.0
Sexual assault	0.2	1.9	—	2.1	97.9	100.0
Kidnapping/abduction	3.9	11.0	0.2	15.1	84.9	100.0
Armed robbery	17.6	73.1	9.3	100.0	—	100.0
<b>1997</b>						
Homicide						
Murder	23.4	49.5	2.5	75.4	24.6	100.0
Attempted murder	28.3	58.8	—	87.1	12.9	100.0
Manslaughter	2.6	35.9	—	38.5	61.5	100.0
Assault	0.7	9.1	0.4	10.2	89.8	100.0
Sexual assault	0.2	1.8	—	2.1	97.9	100.0
Kidnapping/abduction	3.7	8.4	0.2	12.3	87.7	100.0
Armed robbery	24.1	66.5	9.4	100.0	—	100.0

(a) Victims of armed robbery refers to individual persons or organisations. All other offence categories used in this table refer to individual persons.

Source: *Recorded Crime, Australia, 1997 (4510.0)*; *Recorded Crime, Australia, 1998 (4510.0)*.

**11.16 RATES OF CRIME RECORDED BY POLICE, By Use of Weapon in Commission of Offence—1998**

Source: *Recorded Crime, Australia, 1998 (4510.0)*.

## Drug offences

To combat the threat posed by the traffic in and abuse of drugs of dependence, there is close cooperation between the Commonwealth Government, the State and Territory Governments, the various police forces and other law enforcement agencies. In addition to other law enforcement agencies, the Australian Customs Service has responsibility for the enforcement of laws controlling the illicit importing and exporting of drugs.

A total of 84,122 offenders were processed for drug related offences in Australia during the period 1 July 1997 to 30 June 1998, 1.1% fewer

than in the previous year. As table 11.17 shows, by far the largest category of drug offences involved cannabis, with 64,659 offenders (76.9% of the national total), a fall of 6.5% in this category from the previous year. The most significant increase in any category was for offences involving heroin, with 10,366 offenders (12.3% of the national total), an increase of 22.0% on the previous year.

Information on the widespread problems arising from drug abuse in Australia, and on how these problems are being approached, is in the Australian Illicit Drug Report produced by the Australian Bureau of Criminal Intelligence.

**11.17 TOTAL OFFENDERS, By Drug Type—1 July 1997 to 30 June 1998**

Drug type	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
NUMBER									
Cannabis	15 460	9 034	13 021	13 452	11 487	1 196	635	374	<b>64 659</b>
Cocaine	325	32	65	15	23	—	—	—	<b>460</b>
Heroin	3 467	5 544	429	192	623	16	9	86	<b>10 366</b>
Amphetamine	1 612	744	1 305	379	667	15	26	18	<b>4 766</b>
Hallucinogens	176	2	135	74	122	2	8	5	<b>524</b>
Steroids	34	—	9	—	23	—	3	2	<b>71</b>
Other drugs	853	819	878	264	353	106	3	—	<b>3 276</b>
Total	21 927	16 175	15 842	14 376	13 298	1 335	684	485	<b>84 122</b>
PROPORTION (%)									
Cannabis	70.5	55.9	82.2	93.6	86.4	89.6	92.8	77.1	<b>76.9</b>
Cocaine	1.5	0.2	0.4	0.1	0.1	0.0	0.1	0.0	<b>0.5</b>
Heroin	15.8	34.3	2.7	1.3	4.7	1.2	1.3	17.7	<b>12.3</b>
Amphetamine	7.4	4.6	8.2	2.6	5.0	1.1	3.8	3.7	<b>5.7</b>
Hallucinogens	0.8	0.0	0.9	0.5	0.9	0.1	1.2	1.0	<b>0.6</b>
Steroids	0.2	0.0	0.1	0.0	0.2	0.0	0.4	0.4	<b>0.1</b>
Other drugs	3.9	5.1	5.5	1.8	2.7	7.9	0.4	0.0	<b>3.9</b>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>

Source: Australian Bureau of Criminal Intelligence, *Australian Illicit Drug Report*, 1997–98.



## Outcomes of police investigations

Statistics about the outcomes of investigations describe the status of the processes of police investigation that are initiated following the reporting or detection of an offence. The status of investigations includes:

- investigations that were not finalised (i.e. were still continuing, were pending or suspended);
- investigations that were finalised without an offender being proceeded against because the reported offence was not verified, the complaint was withdrawn, or the alleged offender could not be proceeded against because of some statutory or procedural bar; and
- investigations that were finalised and an offender was proceeded against by initiating

court action or some other form of formal proceeding (e.g. a diversionary conference or a caution).

A higher proportion of offences against the person (homicide, assault, sexual assault and kidnapping/abduction) reached a finalised status within 30 days of initiation of the investigation than was the case for offences against property (unlawful entry with intent, theft and motor vehicle theft offences). Similarly, the proportion of offenders proceeded against was higher for offences against the person than for property offences.

Table 11.18 presents national statistics on the outcome of investigations, within 30 days of initiation, into selected offences recorded by police in 1998.

**11.18 VICTIMS OF RECORDED CRIME, Outcome of Investigations, Within 30 Days of Initiation—1998(a)**

	Murder	Attempted murder	Assault	Sexual assault	Kidnapping/Abduction	Robbery(b)	UEWI(c) Total(d)	Motor vehicle theft
Investigation status within 30 days of initiation	%	%	%	%	%	%	%	%
Investigation not finalised	33.1	23.8	44.0	58.1	63.1	80.3	92.9	91.1
Investigation finalised								
No offender proceeded against	6.7	3.4	11.7	16.0	14.2	3.6	1.2	2.2
Offender proceeded against	60.2	72.8	44.3	26.0	22.7	16.0	6.0	6.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	no.	no.	no.	no.	no.	no.	no.	no.
<b>Total</b>	<b>284</b>	<b>382</b>	<b>132 967</b>	<b>14 568</b>	<b>662</b>	<b>23 778</b>	<b>435 670</b>	<b>131 572</b>

(a) For selected offences recorded by police during 1 January to 31 December 1998. (b) Robbery includes both Armed and Unarmed robbery. (c) Unlawful entry with intent. (d) UEWI Total includes both UEWI-involving the taking of property and UEWI-other.

Source: *Recorded Crime, Australia, 1998 (4510.0)*.

## Courts

Courts exist in all Australian States and Territories for the hearing of both criminal and civil cases. A criminal case arises from a charge laid by police or other prosecuting authorities, and is an allegation of a breach of the criminal law. A civil case, by contrast, is a dispute between two or more individuals or corporations, in which one side is seeking a legal remedy for an injury or loss from the other party who is alleged to be liable.

The courts are arranged in a hierarchy, with the bulk of less serious matters being heard before magistrates and more serious matters being heard before judges. In the civil context, the seriousness of a case is usually determined through the amount of money sought in compensation, while for criminal matters seriousness is determined by the nature of the offence alleged. Figure 11.19 illustrates the arrangement of the court system in Australia.

The hierarchy of courts also applies to the system of appeals. Appeals are available to the losing side in a civil matter, and to the defendant in a criminal matter, from all levels of court. The High Court of Australia is the highest court of appeal for both criminal and civil cases.

While the civil jurisdiction and system of appeals are important aspects of the justice system, the section below focuses on the criminal jurisdiction of the courts.

## Criminal courts

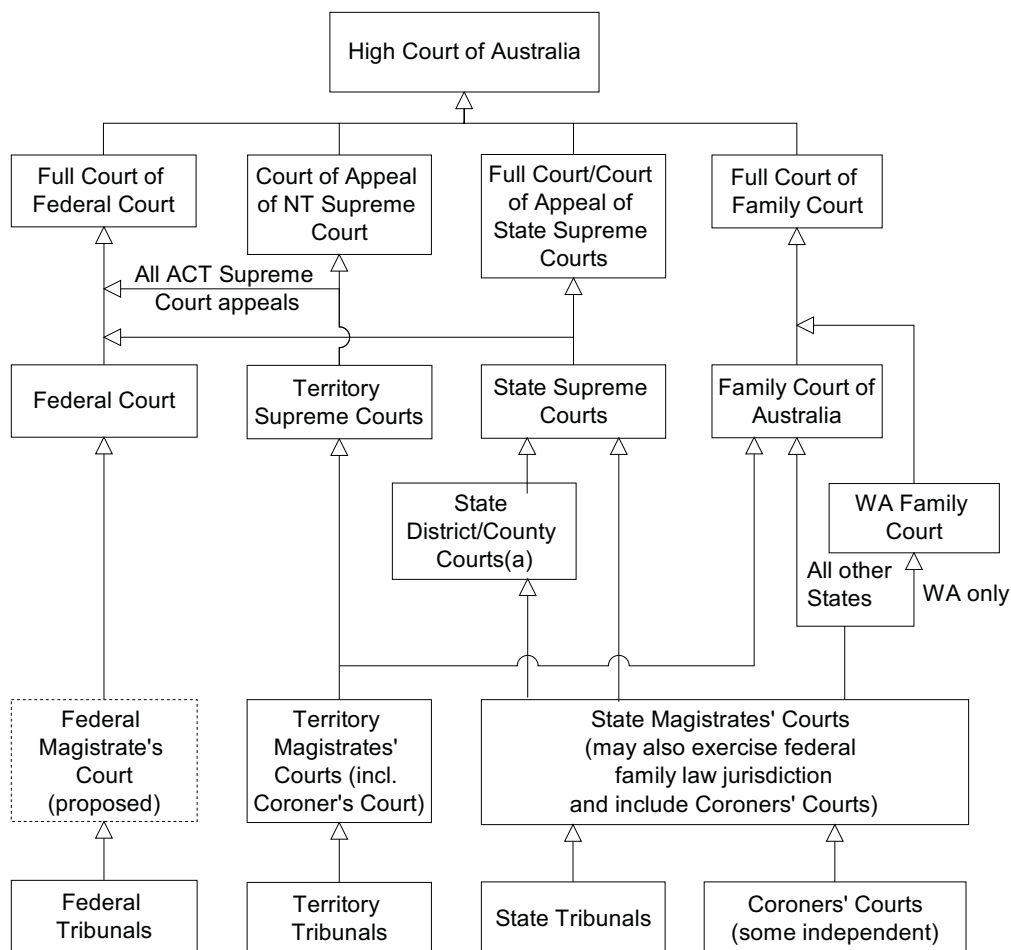
All Australian States and Territories have a system of courts for the hearing of criminal matters. Once charges are laid by police, the court will hear evidence by both prosecution and defence, and will make a decision as to whether or not the defendant is guilty. In cases where the defendant is found guilty, the court may also record a conviction and impose a penalty.

The courts in Australia are arranged hierarchically. The lowest level of criminal court is the Magistrate's Court or Court of Summary Jurisdiction. The majority of all criminal cases are heard in these courts. Cases heard in Magistrates' Courts do not involve a jury; the magistrate acts to determine the guilt of the defendant. This is known as a summary proceeding. Only relatively minor offences can be dealt with in this way. More serious offences are dealt with by the higher levels of court. All States and Territories have a Supreme Court, which can deal with all criminal matters. The larger jurisdictions also have an intermediate level of court, known as the District or County Court, which deals with the majority of serious offences. The Supreme Court and Intermediate Court are collectively referred to as the Higher Courts.

All offences which are dealt with by the Higher Courts have an automatic entitlement to a trial before a judge and jury. In some jurisdictions, the defendant may elect to have the matter heard before a judge alone. Offences which must be heard before a judge and jury are known as indictable offences. These include offences such as murder and drug importation as well as serious sexual offences, robberies and assaults.

The defendant in a criminal matter is entitled to appeal against the conviction or the severity of penalty imposed. Under some circumstances, the prosecution is also entitled to appeal against the leniency of the penalty. The States and Territories differ in the ways in which they deal with appeals. Some appeals from Magistrates' Courts may be heard before the Intermediate Courts. In other jurisdictions, the Supreme Court may hear these appeals. In most jurisdictions, an appeal court or Court of Criminal Appeal may be constituted to hear appeals from the Supreme or Intermediate Courts. In Australia, the highest court of appeal from all jurisdictions is the High Court of Australia.

## 11.19 HIERARCHY OF COURTS



(a) There is no Intermediate (District or County) Court in Tasmania, the Australian Capital Territory and the Northern Territory.

Source: Steering Committee for the Review of Commonwealth/State Service Provision, Report on Government Services 1999.

### National criminal courts statistics

The aim of national criminal courts statistics is to provide comparable data across the States and Territories. The data provided are indicators of the volume and flow of criminal matters through the Supreme and Intermediate Courts (together comprising the Higher Courts), and provide a basis for measuring changes over time.

### Higher criminal courts

Table 11.20 summarises the flow of defendants through the Higher Courts during 1997–98. The workload of the criminal courts can be shown by the number of defendants involved in cases

started before 1997–98 and still being processed (pending at start) and the number of defendants with cases started in the Higher Courts during 1997–98 (initiated). Excluding defendants in Queensland, there were 7,075 defendants pending at the start of 1997–98 and 10,810 defendants initiated during 1997–98, giving a total workload of 17,885 defendants who had criminal cases active at some time during 1997–98. Of this total workload, 9,929 defendants (55.5%) were finalised in the Higher Courts during 1997–98. The number of defendants initiated in Queensland during 1997–98 was 6,229; the number finalised was 6,477.

**11.20 DEFENDANTS INITIATED, FINALISED AND PENDING—1997–98(a)**

Status	NSW	Vic.	Qld(b)	SA	WA	Tas.	NT	ACT	Aust.
SUPREME COURT									
Pending at start	175	65	n.a.	65	132	122	221	106	n.a.
Initiated	125	100	n.a.	64	218	455	250	148	n.a.
Transferred in	—	3	n.a.	52	15	..	..	..	n.a.
Transferred out	5	2	n.a.	20	24	..	..	..	n.a.
Finalised	93	78	813	112	232	351	296	130	2 105
Pending at end	202	88	n.a.	49	109	226	175	124	n.a.
INTERMEDIATE COURT(c)									
Pending at start	3 445	984	n.a.	427	1 333	..	..	..	n.a.
Initiated	4 073	1 889	n.a.	917	2 571	..	..	..	n.a.
Transferred in	5	2	n.a.	20	24	..	..	..	n.a.
Transferred out	—	3	n.a.	52	15	..	..	..	n.a.
Finalised	3 812	1 669	5 664	888	2 268	..	..	..	14 301
Pending at end	3 711	1 203	n.a.	424	1 645	..	..	..	n.a.
TOTAL HIGHER COURTS									
Pending at start	3 620	1 049	n.a.	492	1 465	122	221	106	n.a.
Initiated	4 198	1 989	6 229	981	2 789	455	250	148	17 039
Transferred in	5	5	n.a.	72	39	..	..	..	n.a.
Transferred out	5	5	n.a.	72	39	..	..	..	n.a.
Finalised	3 905	1 747	6 477	1 000	2 500	351	296	130	16 406
Pending at end	3 913	1 291	n.a.	473	1 754	226	175	124	n.a.
TOTAL HIGHER COURTS—RATE PER 100,000 ADULT PERSONS									
Pending at start	75.3	29.5	n.a.	43.0	107.5	34.3	167.0	45.7	n.a.
Total initiated	87.3	56.0	241.3	85.7	204.6	128.1	188.9	63.8	120.2
Total finalised	81.2	49.2	251.0	87.3	183.4	98.8	223.7	56.0	115.8
Pending at end	81.3	36.3	n.a.	41.3	128.6	63.6	132.3	53.4	n.a.

(a) Data exclude defendants in appeal cases. (b) Initiation data for Qld only include defendants committed; data for other methods of initiation are not currently available. The Qld data for 'finalised' exclude bench warrants being issued. Counts of defendants pending and defendants transferred are not currently available for Qld. (c) There is no Intermediate Court in Tas., the NT or the ACT.

Source: *Higher Criminal Courts, Australia, 1997–98* (4513.0).

Table 11.21 indicates the methods by which defendants involved in criminal cases were finalised in the Higher Court system during 1997–98. A defendant is regarded as finalised when all the charges laid against them have been concluded in some manner. In Australia, there were 16,406 defendants finalised in the Higher

Criminal Courts during 1997–98. Of the 13,947 defendants finalised as a result of the charges being adjudicated (proven guilty or acquitted), 90% had at least one charge with a proven outcome (guilty verdict or guilty plea) while the other 10% were acquitted.

### 11.21 DEFENDANTS FINALISED, By Method of Finalisation—1997–98(a)

Method of finalisation	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
SUPREME COURT									
Adjudicated									
Acquitted	12	16	23	20	20	25	29	18	163
Proven guilty									
Guilty verdict	31	29	55	27	49	30	15	15	251
Guilty plea	39	29	654	49	142	225	192	79	1 409
<i>Total proven guilty</i>	70	58	709	76	191	255	207	94	1 660
Total adjudicated	82	74	732	96	211	280	236	112	1 823
Non-adjudicated									
Bench warrant issued	—	—	n.a.	4	9	20	32	2	(c)67
Withdrawn	7	4	81	9	11	47	28	13	200
Other finalisation(b)	4	—	—	3	1	4	—	3	15
Total non-adjudicated	11	4	(c)81	16	21	71	60	18	(c)282
Total defendants finalised	93	78	(c)813	112	232	351	296	130	(c)2 105
INTERMEDIATE COURT(d)									
Adjudicated									
Acquitted	476	169	294	65	220	..	..	..	1 224
Proven guilty									
Guilty verdict	394	171	304	102	260	..	..	..	1 231
Guilty plea	2 309	1 220	3 923	520	1 473	..	..	..	9 445
Proven guilty n.f.d.(e)	—	—	224	—	—	..	..	..	224
<i>Total proven guilty</i>	2 703	1 391	4 451	622	1 733	..	..	..	10 900
Total adjudicated	3 179	1 560	4 745	687	1 953	..	..	..	12 124
Non-adjudicated									
Bench warrant issued	199	23	n.a.	67	107	..	..	..	(c)396
Withdrawn	380	85	916	123	184	..	..	..	1 688
Other finalisation(b)	54	1	3	11	24	..	..	..	93
Total non-adjudicated	633	109	(c)919	201	315	..	..	..	(c)2 177
Total defendants finalised	3 812	1 669	(c)5 664	888	2 268	..	..	..	(c)14 301
TOTAL HIGHER COURTS(d)									
Adjudicated									
Acquitted	488	185	317	85	240	25	29	18	1 387
Proven guilty									
Guilty verdict	425	200	359	129	309	30	15	15	1 482
Guilty plea	2 348	1 249	4 577	569	1 615	225	192	79	10 854
Proven guilty n.f.d.(e)	—	—	224	—	—	—	—	—	224
<i>Total proven guilty</i>	2 773	1 449	5 160	698	1 924	255	207	94	12 560
Total adjudicated	3 261	1 634	5 477	783	2 164	280	236	112	13 947
Non-adjudicated									
Bench warrant issued	199	23	n.a.	71	116	20	32	2	(c)463
Withdrawn	387	89	997	132	195	47	28	13	1 888
Other finalisation(b)	58	1	3	14	25	4	—	3	108
Total non-adjudicated	644	113	(c)1 000	217	336	71	60	18	(c)2 459
Total defendants finalised	3 905	1 747	(c)6 477	1 000	2 500	351	296	130	(c)16 406

(a) Data exclude defendants finalised in appeal cases. (b) Includes defendants who were withdrawn by the prosecution, transferred to another court level or finalised by another non-adjudicated method. (c) These totals exclude Qld defendants finalised by a bench warrant being issued. (d) There is no Intermediate Court in Tas., the NT or the ACT. (e) Where the distinction between Guilty verdict and Guilty plea is unavailable, data are classified to Proven guilty n.f.d.

Source: Higher Criminal Courts, Australia, 1997–98 (4513.0).

The process involved in adjudicating criminal charges depends on how a defendant pleads to the charges laid against them. Defendants who plead guilty to all charges are not subject to a jury trial and go through a sentence hearing to determine the penalty. In contrast, defendants who plead not guilty to at least one charge are typically subject to a trial by jury which determines whether they are acquitted or found guilty. Information on the pleas entered by defendants at the start of their criminal cases provides an indication of the potential need for trials in the Higher Courts, while information on the final pleas entered by defendants provides an indication of the trials that were actually completed.

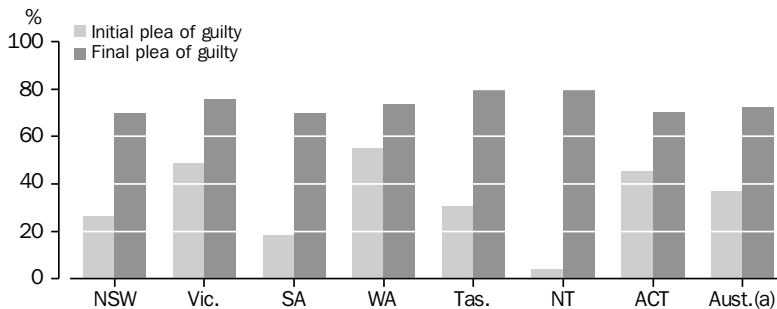
A large number of defendants initially plead not guilty and then change their plea to guilty during the course of criminal proceedings in the Higher Courts. Graph 11.22 indicates the proportion of defendants whose initial and final pleas were guilty. The difference between these two proportions represents the extent to which defendants changed their plea during criminal proceedings. Information on initial and final plea was not available for Queensland. In the other

States and Territories the proportion of defendants changing their plea from not guilty to guilty was highest in the Northern Territory (75.8%) and lowest in Western Australia (18.3%).

For defendants who have been dealt with by the courts, duration figures are available that indicate the elapsed time taken to finalise all charges for a defendant from the date the defendant's case commenced. The total duration for a finalised defendant includes the time taken by the defence and prosecution to prepare their cases, the time taken to list the case and the actual time taken for any hearings.

Table 11.23 provides median duration statistics from initiation to finalisation for defendants in each State and Territory. During 1997–98, the median duration for defendants finalised in the Higher Courts was longest in New South Wales at 32.3 weeks, and shortest in Western Australia and Tasmania at 12.6 weeks and 14.1 weeks respectively. The median duration is longer for some methods of finalisation than for others: in most States and Territories, it takes longer for a defendant to be finalised if they have a guilty verdict than if they plead guilty or if they are acquitted.

**11.22 PROPORTION OF DEFENDANTS MAKING INITIAL AND FINAL PLEAS OF GUILTY, By State/Territory—1997–98**



(a) Excludes Qld where data on both initial and final pleas were not available.

Source: *Higher Criminal Courts, Australia, 1997–98* (4513.0).

**11.23 DEFENDANTS, Median Duration (Weeks) to Finalisation—1997–98(a)**

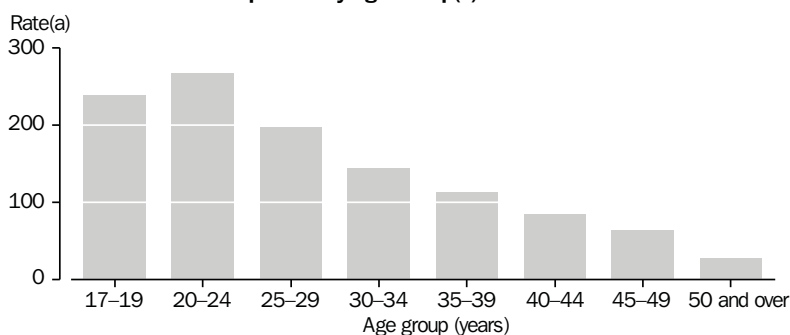
Method of finalisation	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
<b>SUPREME COURT</b>									
Acquitted	71.4	47.6	37.9	33.0	41.1	28.3	48.7	52.6	42.3
Guilty verdict	104.6	45.1	32.4	44.1	38.3	25.6	74.4	48.6	42.0
Guilty plea	67.1	31.6	18.9	36.6	11.6	12.0	25.7	14.1	17.3
Other finalisation(b)	79.9	25.8	34.4	23.1	15.1	17.7	36.9	35.9	29.1
<i>Total defendants finalised</i>	<i>76.4</i>	<i>41.8</i>	<i>21.6</i>	<i>36.5</i>	<i>15.1</i>	<i>14.1</i>	<i>31.8</i>	<i>21.8</i>	<i>22.9</i>
<b>INTERMEDIATE COURT(C)</b>									
Acquitted	47.5	37.6	28.7	28.3	53.9	..	..	..	41.0
Guilty verdict	53.4	44.1	28.6	29.2	54.7	..	..	..	42.4
Guilty plea	26.4	16.4	16.6	18.1	9.1	..	..	..	17.0
Proven guilty n.f.d.(d)	—	—	25.9	—	—	..	..	..	25.9
Other finalisation(b)	33.3	25.3	26.3	16.1	17.3	..	..	..	25.6
<i>Total defendants finalised</i>	<i>31.7</i>	<i>20.4</i>	<i>18.9</i>	<i>19.4</i>	<i>12.1</i>	<i>..</i>	<i>..</i>	<i>..</i>	<i>21.1</i>
<b>TOTAL HIGHER COURTS(C)</b>									
Acquitted	47.8	40.0	30.0	29.7	53.6	28.3	48.7	52.6	41.1
Guilty verdict	57.1	44.7	29.6	32.1	51.9	25.6	74.4	48.6	42.3
Guilty plea	26.7	16.6	16.9	18.9	9.4	12.0	25.7	14.1	17.0
Proven guilty n.f.d.(d)	—	—	25.9	—	—	—	—	—	25.9
Other finalisation(b)	33.3	25.3	26.6	16.9	17.2	17.7	36.9	35.9	26.0
<b>Total defendants finalised</b>	<b>32.3</b>	<b>21.4</b>	<b>19.1</b>	<b>20.3</b>	<b>12.6</b>	<b>14.1</b>	<b>31.8</b>	<b>21.8</b>	<b>21.3</b>

(a) Data exclude defendants finalised in appeal cases. (b) Includes defendants who were withdrawn by the prosecution, transferred to another court level or finalised by another non-adjudicated method. (c) There is no Intermediate Court in Tas., the NT or the ACT. (d) Where the distinction between Guilty verdict and Guilty plea is unavailable, data are classified to Proven guilty n.f.d.

Source: *Higher Criminal Courts, Australia, 1997–98 (4513.0)*.

Graph 11.24 shows the proportion of defendants by age group during 1997–98. The highest rate of defendants was in the 20–24 age group with 267.9 defendants per 100,000 persons. The second highest rate was the 17–19 age group with 239.7

defendants per 100,000 persons in that age group. The median age of defendants finalised was 28.6 years. Most defendants dealt with in the Higher Courts during 1997–98 were male (88.8%).

**11.24 TOTAL HIGHER COURTS—DEFENDANTS FINALISED, Proportion by Age Group(a)—1997–98**

(a) Rate per 100,000 persons in each age group.

Source: *Higher Criminal Courts, Australia 1997–98 (4513.0)*.

**11.25 CRIMINAL COURT CASES(a)(b), By Court Level—1997–98(b)**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Court level	'000	'000	'000	'000	'000	'000	'000	'000	'000
Supreme Court	0.9	0.7	1.4	0.6	0.4	0.6	0.3	0.2	5.0
District/County Court(c)	10.5	4.4	8.4	1.5	2.6	..	..	..	27.4
Magistrate's Court	432.9	539.6	313.5	189.2	246.0	30.7	19.3	9.0	1 780.0
<b>Total</b>	<b>444.3</b>	<b>544.7</b>	<b>323.3</b>	<b>191.3</b>	<b>249.0</b>	<b>31.3</b>	<b>19.6</b>	<b>9.2</b>	<b>1 812.4</b>

(a) Cases are defined as one defendant with one or more criminal matters before the courts or involving more than one defendant.

(b) Data include appeal and non-appeal cases. (c) The Northern Territory, the Australian Capital Territory and Tasmania do not have District/County Courts.

Source: Steering Committee for the Review of Commonwealth/State Service Provision, *Report on Government Services 1999*.

### Total criminal cases

Table 11.25 shows the total number of criminal cases handled in the courts of Australia, including appeal and non-appeal cases. Of all the criminal cases filed in Australia during 1997–98, 98% were filed in the Magistrates' Courts, with New South Wales and Victoria contributing 55% to the national total. A large proportion of cases in the Magistrate's Court in most States and Territories are minor traffic matters.

### Corrective services

Corrective services are responsible for administering those penalties and orders handed down by the criminal courts which require some form of supervision or custody of the offender. This may include imprisonment on either a full or part-time basis, community service and other forms of supervised work, home detention or good behaviour bonds under supervision. Most persons for whom corrective services have responsibility have received a sentence from a criminal court, but some persons have been given orders pending judgement or sentencing (e.g. unsentenced prisoners).

All States and Territories operate prisons and other corrective services. Separate provisions exist in each State and Territory for dealing with juvenile offenders. Convicted adult prisoners from the Australian Capital Territory serve their sentences in New South Wales prisons, but local provision is made for the custody of unsentenced

prisoners and periodic detainees, and for community corrections (e.g. probation and parole). The Commonwealth Government does not operate any prisons or other corrective services, as federal offenders (persons convicted of offences under Commonwealth laws) are supervised by State agencies for correctional purposes.

A number of jurisdictions have established or are examining the possibility of establishing privately operated prison facilities. These prisons operate in conjunction with State operated prisons and are monitored by the Corrective Services authorities in a similar manner to State operated prisons. There is likely to be an increasing trend towards this type of arrangement in future.

In the *Report on Government Services 1999*, Corrective Services comprise prison, periodic detention and community corrections. Community corrections comprise home detention, community service and supervision. In 1997–98, the total number of persons under the authority of Corrective Services was 74,810, of whom 54,893 were in community corrections and 19,917 were in prison or periodic detention (table 11.26).

While the community based corrections system is an important aspect of the corrective services system, the following commentary focuses on offenders in prisons.



**11.26 OFFENDERS, By Type of Detention—1997–98**

Type of detention	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
NUMBER									
Prisoners	6 358	2 692	4 586	1 421	2 255	269	610	153	18 344
Periodic detention	1 531	..	..	..	..	..	..	42	1 573
Community corrections(a)									
Home detention	n.a.	..	84	113	57	..	24	..	278
Fine option	n.a.	n.a.	7 092	4 542	329	174	n.a.	n.a.	12 137
Community service	n.a.	n.a.	1 882	1 412	1 777	988	306	n.a.	6 365
Supervision	n.a.	n.a.	8 068	3 189	3 867	592	672	775	17 163
Total community corrections(b)	14 199	7 069	17 126	8 375	4 593	1 754	1 002	775	54 893
Total offenders	22 088	9 761	21 712	9 796	6 848	2 023	1 612	970	74 810
RATE PER 100,000 ADULTS(c)									
Prisoners	133.0	76.2	179.2	124.4	166.9	75.8	458.6	66.5	130.3
Periodic detention	32.0	..	..	..	..	..	..	18.0	..
Community corrections	292.8	200.1	1 312.3	727.7	332.6	493.4	753.4	322.9	479.5
Total Corrective Services	457.8	276.3	1 492.0	852.1	499.5	569.2	1 212.0	407.4	609.8

(a) NSW counted each offender once, regardless of the number of orders or order types they were serving. (b) The total number of persons in community corrections may not equal the sum of persons serving each type of order because an individual may be serving more than one order. (c) Based on average daily offender numbers in 1997–98.

Source: Steering Committee for the Review of Commonwealth/State Service Provision,

**Prisoners in Australia**

The annual National Prisoner Census, conducted on the night of 30 June, counts all persons who are held in custody in gazetted Australian prisons for adult offenders at that time. The National Prisoner Census was conducted by the Australian Institute of Criminology from 1982 to 1993, and by the ABS since 1994. The Prisoner Census provides a snapshot of the number of persons in prison, and is not representative of the flow of prisoners. The majority of prisoners in the Prisoner Census are serving long sentences for relatively serious offences, but the flow of offenders in and out of prisons consists primarily of persons serving short sentences for relatively minor offences.

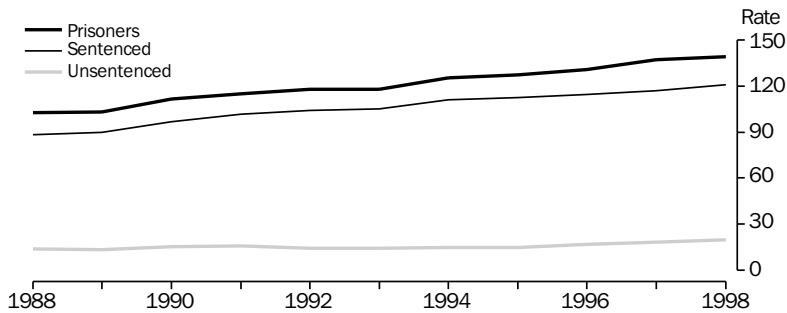
Based on the results of the Prisoner Census, the total prison population in Australia increased from 12,321 in 1988 to 19,906 in 1998. The proportion of unsentenced prisoners increased marginally, from 13% in 1988 to 14% in 1998. Factors influencing the size of the prison population over this period include legislative changes affecting the length of time prisoners spend in prison; the abolition of a sentence-reducing mechanism such as remission; significant court delays leading to an increase in unsentenced prisoners in some jurisdictions;

changes to the ways in which minor offences are dealt with, particularly fine default; and the growth of the Australian resident population. Graph 11.27 shows a time series of the rate of adult prisoners per 100,000 adult population. The rate has slowly increased since 1988.

The majority of prisoners in Australia in 1998 were male (94%). The average prisoner age was 33 years, decreasing from 35 years in 1988.

The ABS collects monthly information on the number of prisoners, including counts of prisoners received as sentenced, although this information is less detailed than in the annual Prisoner Census. Table 11.28 shows the average daily population of prisoners, by sex and jurisdiction. In March 1999, the prison population in Australia averaged 20,122, a rate of 142 per 100,000 adult population.

Imprisonment rates vary between jurisdictions (graph 11.29). In March 1999 the highest average daily prison population rate (476 per 100,000 adult population) was recorded by the Northern Territory, which was over twice the next highest rate, recorded in Western Australia (209 per 100,000 adult population).

**11.27 IMPRISONMENT RATE(a)**

(a) The data are a snapshot of the prison population as at 30 June each year. The rate is per 100,000 adult persons.

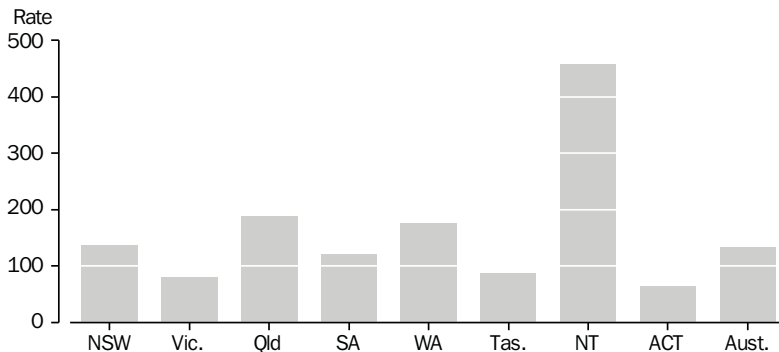
Source: *Australian Prisoners*, Australian Institute of Criminology, 1988 to 1993; and *Prisoners in Australia*, 1994 to 1998, a report prepared by the ABS.

**11.28 AVERAGE DAILY PRISONER POPULATION, By Sex—March 1999**

Sex	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT in NSW(a)	ACT remand	Aust.
NUMBER										
Males	6 496	2 663	4 866	1 307	2 628	304	611	114	28	18 903
Females	404	177	298	72	223	14	29	7	2	1 219
Persons	6 900	2 840	5 164	1 379	2 851	317	640	121	30	20 122
RATE PER 100,000 ADULTS										
Males	276.4	151.4	374.0	236.1	386.3	175.4	853.7	98.8	24.3	269.9
Females	16.6	9.6	22.6	12.4	32.7	7.5	46.0	5.9	1.9	16.9
Persons	144.3	78.9	197.1	121.7	209.3	89.3	476.2	51.8	13.0	141.5

(a) Prisoners sentenced to full-time custody in the Australian Capital Territory are held in New South Wales prisons and are included in the New South Wales figures. The Australian Capital Territory in New South Wales figures are a subset of the New South Wales figures and are not included in the totals for Australia.

Source: *Corrective Services, Australia, March Quarter 1999 (4512.0)*.

**11.29 IMPRISONMENT RATE(a)—June 1998**

(a) Rate per 100,000 adult persons.

Source: *Corrective Services, Australia, June Quarter 1998 (4512.0)*.

### Most serious offence

Table 11.30 shows, for 1998, the proportion of sentenced prisoners by most serious offence for each State and Territory. The most serious offence is the offence for which prisoners have received the longest sentence.

Nearly half (48%) of all sentenced prisoners were convicted of offences involving violence or the threat of violence, including murder (7%), other homicide (3%), assault (12%), sex offences (13%), other offences against the person (1%) and robbery (13%). Sentenced prisoners convicted of a property offence as their most serious offence represented 26% of all sentenced prisoners, including 13% sentenced for break and enter. A further 9% were serving sentences for drug

offences as their most serious offence, and 4% of the national proportion of sentenced prisoners were convicted of driving offences as their most serious offence.

There were differences in the types of offences for which men and women were sentenced to imprisonment, reflecting the differences in the patterns of offending between men and women. The most common offences for males in 1998 were break and enter, sex offences, robbery and assault. For females, the most common offences were fraud and misappropriation, break and enter, dealing and trafficking in drugs, and robbery. While a higher proportion of males were convicted of a violent offence, females were more often convicted of homicide offences than males.

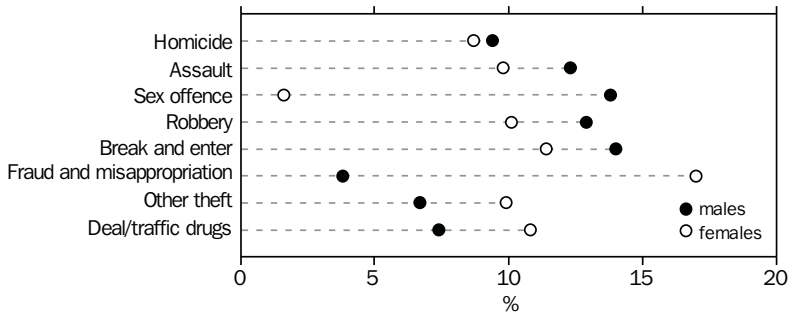
**11.30 SENTENCED PRISONERS, By Most Serious Offence(a)—1998**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT(b)	Aust.	Aust.
Offence Category	%	%	%	%	%	%	%	%	%	no.
Homicide	7.4	10.0	10.4	11.1	9.1	16.8	8.3	8.3	9.2	<b>1 576</b>
Assault	13.5	5.7	13.0	12.6	11.0	9.4	19.2	13.5	12.0	<b>2 060</b>
Sex offences	10.5	16.7	16.5	8.9	17.3	10.2	7.9	7.7	13.3	<b>2 283</b>
Robbery	12.7	9.2	15.4	12.8	16.0	8.6	3.5	11.5	12.9	<b>2 200</b>
Break and enter	11.7	11.4	15.7	15.0	16.5	17.2	13.0	9.6	13.4	<b>2 300</b>
Fraud and misappropriation	5.2	3.2	2.8	7.7	1.9	0.8	2.2	1.3	4.0	<b>682</b>
Other theft	6.4	10.6	3.9	2.7	4.8	9.4	10.1	5.8	6.2	<b>1 056</b>
Government security(c)	10.3	8.2	5.2	7.9	6.6	9.8	4.0	7.7	8.0	<b>1 372</b>
Drug offences	11.4	12.1	7.0	7.8	6.4	2.4	2.4	12.2	9.2	<b>1 568</b>
Driving offences	5.5	1.2	2.7	2.8	2.8	5.5	10.1	8.3	3.9	<b>671</b>
Other offences	5.7	10.4	7.7	10.7	12.4	10.2	17.4	14.0	7.7	<b>1 350</b>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	<b>17 118</b>

(a) The most serious offence is the offence with the longest sentence a prisoner has received. Where the sentences are equal, or the longest sentence cannot be determined, the most serious offence is the offence with the lowest Australian National Classification of Offences (ANCO) code. (b) Prisoners sentenced to full-time custody in the ACT are held in NSW prisons and are also included in the NSW figures. (c) Government security also includes Justice procedures.

Source: *Prisoners in Australia, 1998—A report prepared for the Corrective Services Ministers' Council by the National Correctional Services Statistics Unit, ABS.*

### 11.31 SENTENCED PRISONERS, By Sex and Selected Most Serious Offence—1998



Source: *Prisoners in Australia, 1998—A report prepared for the Corrective Services Ministers' Council by the National Correctional Services Statistics Unit, ABS.*

### 11.32 SENTENCED PRISONERS, Proportion by Aggregate Length of Sentence(a)(b)—30 June 1998

	Less than 1 year	1 to <5 years	5 to <10 years	10 years and over	Indeterminate (e.g. life)
Police force	%	%	%	%	%
NSW(c)	17.3	32.0	18.1	10.6	2.3
Vic.	31.5	37.4	18.1	11.2	1.8
Qld	17.8	35.1	26.6	13.8	6.8
SA	18.0	38.7	26.1	8.4	8.8
WA	11.6	44.8	24.2	11.2	8.2
Tas.	41.8	27.7	11.7	6.6	12.1
NT	39.3	39.0	11.9	5.1	4.6
ACT(c)	8.9	35.4	32.7	19.5	3.5
<b>Aust.</b>	<b>19.8</b>	<b>35.5</b>	<b>21.0</b>	<b>10.4</b>	<b>4.6</b>

(a) Excludes periodic detainees. (b) The aggregate sentence is the longest period that the offender may be detained under sentence in the current episode. Charges pending which are likely to extend the current episode are ignored. (c) Prisoners sentenced to full-time custody in the ACT are held in NSW prisons and are also included in the NSW figures.

Source: *Prisoners in Australia, 1998—A report prepared for the Corrective Services Ministers' Council by the National Correctional Services Statistics Unit, ABS.*

Aggregate length of sentence is a measure of the sentences imposed on an offender, taking multiple offences into account. It is not measured for prisoners who receive an indeterminate type of sentence such as life, and periodic detainees' sentences are measured separately. At 30 June 1998, the average aggregate sentence of all prisoners was 4.6 years. Male prisoners were

serving an average aggregate sentence of 4.7 years, compared to an average of 3.1 years for female prisoners.

Prisoners with indeterminate sentences made up 4.6% of all prisoners (table 11.32); periodic detainees represented 7%.

### Indigenous prisoners

To measure Indigenous imprisonment in Australia three different indices are used: the number of Indigenous prisoners; the number as a proportion of the adult Indigenous population (rate per 100,000 adult Indigenous population); and the comparison (ratio) of Indigenous to non-Indigenous rates of imprisonment (table 11.33). Imprisonment rates per 100,000 adult Indigenous population enable the comparison of Indigenous imprisonment across the States and Territories, while the latter ratio indicates the extent to which the imprisonment rates of Indigenous persons exceed the imprisonment rates of non-Indigenous persons.

Information on Indigenous prisoners is not currently available for NSW. Of the other States and Territories, on 1 March 1999 the highest number of Indigenous persons in prison custody was recorded in Queensland (1,110). The highest rate of Indigenous imprisonment was recorded in WA (3,050 Indigenous persons per 100,000 adult Indigenous population) and the highest ratio of Indigenous to non-Indigenous rates of imprisonment was also recorded in WA, which had an Indigenous rate of imprisonment 22 times the non-Indigenous rate.

**11.33 INDIGENOUS IMPRISONMENT—1 March 1999**

	NSW(a)	Vic.	Qld	SA	WA	Tas.	NT	ACT(b)	ACT in NSW(a)
Number	n.a.	120	1 110	200	968	34	476	9	n.a.
Rate(c)	n.a.	895.5	1 820.1	1 598.7	3 054.0	385.2	1 520.6	n.p.	n.a.
Ratio(d)	n.a.	11.9	11.7	14.9	22.0	4.7	10.2	n.p.	n.a.

(a) Numbers of Indigenous prisoners for NSW, including prisoners sentenced in ACT and held in NSW prisons, are unavailable.

(b) Refers to unsentenced prisoners in ACT prison custody. (c) Rate of Indigenous prisoners per 100,000 adult Indigenous population. (d) Ratio of Indigenous to non-Indigenous rates of imprisonment.

Source: *Corrective Services, Australia, March Quarter 1999 (4512.0)*.

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Australian Institute of Criminology, *Australian Prisoners, Results of the National Prison Census, 1988 to 1993*.

### Other publications

National Crime Authority, *Annual Report, 1997–98, 1998–99*.

Steering Committee for the Review of Commonwealth/State Service Provision, *Report on Government Services 1998 & 1999*, Productivity Commission. Available from the Productivity Commission's Internet site at <http://www.pc.gov.au/service/gsppubs.html>

### Internet sites

#### Australian sites

Australian Federal Police, <http://afp.gov.au>

Australian Institute of Criminology, <http://www.aic.gov.au>

National Crime Prevention, <http://www.ncp.gov.au>

NSW Police Service, <http://www.police.nsw.gov.au>

NT Police, <http://www.nt.gov.au/ntpf/>

Productivity Commission, <http://www.pc.gov.au>

Qld Police Service, <http://www.police.qld.gov.au>

SA Police, <http://www.sapolice.sa.gov.au>

Tasmania Police, <http://www.police.tas.gov.au>

Victoria Police, <http://www.police.vic.gov.au>

WA Police, <http://www.wapol.gov.au>

**International sites**

United Nations Online Crime and Justice Information Network (UNCJIN), *<http://www.unjcin.org/>*

United Nations Online Crime and Justice Clearinghouse (UNOJUST), *<http://www.ncjrs.org/unojust/>*

U.S. Dept of Justice, *<http://www.usdoj.gov>*

Dept of Justice Canada, *[http://canada.justice.gc.ca/index\\_en.html](http://canada.justice.gc.ca/index_en.html)*

NZ Dept of Justice, *<http://www.govt.nz/justice>*

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## Introduction

Cultural and recreational activities are essential to a shared sense of quality of life, and take many forms. At a national level, these forms range across cultural heritage, creative and performing arts, music, literature, film and video, libraries, radio and television, leisure, sports and recreation.

This chapter reviews a range of cultural and recreational activities which Australians undertake, and provides a statistical summary (where available) for those activities.

## Cultural and natural heritage

Australia's heritage draws on its cultural and natural environments and the history of its people. It encompasses all the things that are significant to Australians which have survived from the past.

Cultural heritage includes historic places of significance, such as old towns and residential and commercial buildings, Indigenous ceremonial grounds and rock art galleries, shipwrecks and streetscapes, as well as paintings, objects, books, aircraft and natural history specimens. Increasingly what was formerly intangible, such as traditions, customs and habits, is being recorded and documented in photographs, films, tapes and digital records.

Movable cultural heritage refers to items of cultural heritage which are capable of being transported. Australia is one of only a few countries which have developed and published a specific policy and strategy to care for their movable cultural heritage. Through the Heritage Collections Council, the Commonwealth Government and the State, Territory and local governments work collaboratively with the museums sector and non-government organisations to conserve, promote, manage and provide access to Australia's collections of movable cultural heritage.

Natural heritage includes places of scientific, archaeological, aesthetic and ecological importance. It also can include geological features and landscapes. Extensive areas of coastline, forests, wetlands and desert are included in national parks, nature reserves and wilderness areas. Many smaller sites are important habitats for native flora and fauna, enabling the conservation of threatened species.

Many natural places are significant to Indigenous communities for cultural reasons.

Conservation of heritage places involves identifying them, surveying their values, classifying and managing them. These functions are shared between all levels of government and their statutory authorities, with assistance from academic and professional bodies, individuals and community conservation organisations such as the National Trusts and conservation councils in each State and Territory.

The Commonwealth Government works in partnership with the community and with State and Territory Governments. It undertakes heritage activities on its own account where the implications of these actions go beyond State or local boundaries. Examples of this include the nomination of sites for World Heritage listing, the protection of Aboriginal heritage, and advice about proposals which might affect places entered in the Register of the National Estate—Australia's national heritage list.

## National Estate

The term 'the National Estate' was coined by William Clough Ellis, a British architect in the 1940s. It was introduced into Australia when the Federal Government set up a Commission of Inquiry into the National Estate, headed by Hon. Mr Justice R.M. Hope. The inquiry aimed to "preserve and enhance the quality of the National Estate". Following the recommendations of this inquiry, the Australian Heritage Commission Act was passed in 1975 with the support of all political parties.

'The National Estate' is defined in the legislation as:

"... those places, being components of the natural environment of Australia, or the cultural environment of Australia, that have aesthetic, historic, scientific or social significance or other special value for future generations as well as for the present community."

Both publicly and privately owned places form part of the National Estate. It encompasses places which are important to local communities, as well as those which are of regional or State significance. The National Estate also includes places which have national or international significance. Broad stretches of coastline, desert, forest and national parks, as well as isolated geological monuments and small areas which might provide habitats for endangered plant or animal species, are part of the National Estate. It

can cover whole villages and suburbs, streetscapes, single mansions, cattlemen's huts, railway yards and other reminders of the evolution of Australia's society and economy. Places of Aboriginal or Torres Strait Islander significance such as rock engravings, galleries of rock art, fish traps, carved trees, meeting places, ceremonial sites, and reminders of early European settlement such as mission stations, are part of Australia's National Estate.

The Australian Heritage Commission has a statutory obligation to identify the National Estate and has established the Register of the National Estate to place on public record Aboriginal, Historic and Natural places to ensure that they are appropriately managed and conserved.

During 1998–99, the number of places in the Register of the National Estate increased by a net 403 to 12,364. This compared with a net increase of 276 in 1997–98. Details by State and type, for 1998–99 and 1997–98, are shown in table 12.1.

More comprehensive statistics on the types of places on the Register of the National Estate can be found in the annual reports of the Australian Heritage Commission.

## Natural environment

The natural environment includes conservation areas and areas used for outdoor recreation (except sport), such as national terrestrial and marine parks or reserves; other natural areas on the National Estate or equivalent State or Territory government registers; and tourist caves. Management of the natural environment ensures the conservation of local flora and fauna, controls or excludes the

development of the area for fishing, forestry, mining or agriculture and, where appropriate, facilitates access by the general public.

As well as establishing protected areas, governments promote protection of the broader environment through laws and funding programs. These protect the basic environmental support systems, such as waterways, and help to restore degraded areas through tree planting and bush regeneration schemes.

## National parks

National parks and other protected areas are established under Commonwealth or State/Territory laws. There is no coordinating legislation, although all governments participate in national forums and cooperate in joint programs, such as the National Reserves System, to achieve a common purpose. Most national parks and other protected areas in Australia are declared and managed by State and Territory Governments. The Commonwealth Government declares and manages parks and reserves on land owned or leased by the Commonwealth, in Commonwealth waters and on Aboriginal land leased to the Commonwealth.

Over 50 different designations are given to protected areas by the Commonwealth, State and Territory management agencies, the most common being 'national park' and 'nature reserve'. Management of these different designations varies, from strictly protected areas with limited public access, to areas where recreation is encouraged but resource development is not, to multiple use areas where resource utilisation, recreation and nature conservation are all practised.

**12.1 PLACES ON THE REGISTER OF THE NATIONAL ESTATE, By Number and Type**

State/Territory	Indigenous places		Historic places		Natural places		Total	
	1997–98	1998–99	1997–98	1998–99	1997–98	1998–99	1997–98	1998–99
New South Wales	214	218	2 890	2 973	434	443	3 538	3 634
Victoria	106	106	2 255	2 280	208	215	2 569	2 601
Queensland	147	149	727	731	270	280	1 144	1 160
Western Australia	74	74	889	916	233	244	1 196	1 234
South Australia	145	147	1 034	1 165	376	383	1 555	1 695
Tasmania	65	65	1 175	1 178	233	237	1 473	1 480
Northern Territory	91	104	106	130	50	59	247	293
Australian Capital Territory(a)	27	27	149	157	30	30	206	214
External Territories	—	—	17	36	16	17	33	53
<b>Total</b>	<b>869</b>	<b>890</b>	<b>9 242</b>	<b>9 566</b>	<b>1 850</b>	<b>1 908</b>	<b>11 961</b>	<b>12 364</b>

(a) Includes Jervis Bay.

Source: Australian Heritage Commission.

## Use of national parks

Table 12.2 gives the numbers and profile of the people visiting national parks in Australia. These findings are derived from an ABS household survey, the Population Survey Monitor, over four quarters in 1996–97, and show that a total of 3.34 million people (25.3% of the Australian population aged 18 and over) went to a national park in the three month period preceding conduct of the survey. Of these, 1.73 million were males and 1.61 million were females.

### 12.2 VISITORS TO NATIONAL PARKS—1996–97

Visitors	'000
Sex	
Male	1 725
Female	1 613
Total	3 339
Age	
18–24 years	520
25–34 years	846
35–44 years	920
45–54 years	536
55–64 years	281
65 years and over	235
Birthplace	
Australian-born	2 528
Overseas-born	810

Source: Population Survey Monitor, 1996–97.

## National park organisations

The ABS Survey of Zoos, Parks and Gardens in respect of 1996–97 showed that there were 684 organisations operating national parks and recreation parks and gardens. These organisations operated 462 individual national parks, 52,164 separate recreational parks and gardens, 270 wildlife sanctuaries, 42 tourist caves, and 24 marine parks at the end of June 1997 (table 12.3).

### 12.3 NATIONAL PARKS AND RECREATIONAL PARKS AND GARDENS, Key Aggregates—1996–97

	Unit	
Organisations at end June 1997	no.	684
Locations at end June 1997		
National parks	no.	462
Recreational parks and gardens	no.	52 164
Wildlife sanctuaries	no.	270
Tourist caves	no.	42
Marine parks	no.	24
Total locations	no.	52 963
Area at end June 1997		
National parks	ha	25 964 351
Recreational parks and gardens	ha	3 386 354
Wildlife sanctuaries	ha	81 970
Tourist caves	ha	8 454
Marine parks	ha	42 605 725
Total area	ha	72 046 854
Employment at end June 1997		
Full-time	no.	15 035
Part-time	no.	1 611
Total employment	no.	16 646
Volunteers during June 1997	no.	10 679
Income	\$m	1 347
Expenses	\$m	1 120
Industry gross product	\$m	543

Source: Zoos, Parks and Gardens Industry, Australia (8699.0).

## Museums and art museums

Museums are defined by the International Council of Museums as institutions, generally housed in one or more buildings, primarily engaged in the collection, acquisition, conservation and exhibition of the material evidence of people, their culture and environment, for the purpose of education and enjoyment by the general public and/or specialists. Conceptually, museums include art museums and historical theme parks, such as Sovereign Hill, but exclude commercial art galleries as they are regarded as retail outlets. However, in the discussion below and in tables 12.4 and 12.5, museums and art museums have been treated as separate entities.

In many cases, State museums and art museums were established many years before their national counterparts. As a result, a number of notable national collections are housed in museums operated by or through State Governments, rather than being housed in the national institutions. The main national museums, art museums and cultural institutions are the National Museum of Australia, the National Gallery of Australia, the Australian National

Maritime Museum, the Australian War Memorial, the National Science and Technology Centre (Questacon), and the National Portrait Gallery. There are over 1,700 museums and art museums operating in Australia.

An on-line national access program, Australian Museums On Line (AMOL), has a database of information on over 1,000 museums. The site aims to offer access to information about every item held in museums in Australia. AMOL is an initiative of the Heritage Collections Council, which coordinates national approaches to caring for, and promoting access to, Australia's heritage collections.

Museums Australia, the peak industry association, has a membership base comprising those who work and contribute to Australia's museums and public galleries. The association's primary role is to advocate for the industry and provide a range of professional services to its members. The services are offered at a national, State and interest group level, and include professional development and training opportunities, newsletters, advocacy and representation.

### Museum and art museum attendance

The Survey of Attendance at Selected Cultural Venues was conducted by the ABS in March 1995. It revealed that 3.9 million people, 27.8% of the Australian population aged 15 and over, had visited a museum at least once in the previous 12 months. A total of 3.1 million people (22.3% of the Australian population aged 15 and over) had visited an art museum.

### 12.4 ATTENDANCE AT MUSEUMS AND ART MUSEUMS—1995

	Museums	Art museums
Attendees	'000	'000
Sex		
Male	1 867	1 318
Female	2 039	1 817
Total	3 910	3 134
Age		
15–24 years	767	628
25–34 years	829	598
35–44 years	939	643
45–54 years	646	591
55–64 years	384	350
65 years and over	342	325
Birthplace		
Australian-born	2 951	2 351
Overseas-born	955	783

Source: Attendance at Selected Cultural Venues, March 1995 (4114.0).

### Museums industry

The ABS conducted a survey in respect of 1996–97 of employing businesses and organisations whose main activity was the provision of museum services to the public. Also surveyed were the museum activities of local government authorities, where their operations had paid staff.

In total, there were 224 employing organisations in the museums industry at 30 June 1997 (table 12.5). These organisations operated from a total of 352 locations. Museums constituted the most common type of business in the industry (102 organisations), and there were 32 art museum organisations, 69 local government authorities which operated museums or art museums, and 21 organisations which operated historic houses. Other than local government authorities there were 155 employing organisations operating from 260 locations. More detailed information from this survey is shown in *Chapter 21, Service industries*.

### 12.5 EMPLOYING MUSEUMS, Key Aggregates—1996–97

	Unit	Art museums	Museums	Local government authority museums/art museums	Historic houses	Total
Organisations at end June 1997	no.	32	102	69	21	224
Locations at end June 1997	no.	32	111	92	117	352
Admissions	'000	4 761.6	8 675.8	1 996.6	1 352.7	16 786.8
Employees at end June 1997	no.	1 230	3 240	444	722	5 636
Volunteers during June 1997	no.	1 654	4 300	1 745	744	8 443
Income	\$m	130.3	234.6	22.0	38.3	425.2
Expenses	\$m	109.4	235.3	19.2	37.8	401.7
Industry gross product	\$m	50.4	123.5	9.7	15.5	199.1

Source: Libraries and Museums, Australia, 1996–97 (8649.0).

The ABS also conducted a survey in respect of 1997–98 of all museum locations other than the 260 non-government locations surveyed in respect of 1996–97. The 1997–98 survey of selected museums included those operated by non-profit organisations and staffed by volunteers; those operated by owners or working proprietors who did not employ staff; and those which were small parts of government and corporate organisations (such as local government museums (again) and universities).

There were 1,473 of these museum locations operating at 30 June 1998 (table 12.6). Of these, 195 were art museums, including craft museums, public galleries and displays of art and craft works. There were also 283 historic places, including house museums, which housed heritage collections open to the public. Of the 995 other museums, there were 117 transport and maritime museums, 779 other social history museums/displays, 84 natural history and science museums/displays and 15 Indigenous keeping places.

## Botanic gardens, zoological parks and aquaria

### Botanic gardens

Botanic gardens and arboreta (tree collections) are scientific and cultural institutions established to collect, study, exchange and display plants for research and for the education and enjoyment of the public. Some botanic gardens augment the living botanical displays with a herbarium (a scientific collection of dried preserved plant specimens used for the accurate classification and identification of plants and plant material and for taxonomic studies), and some botanic gardens (those in Adelaide, Melbourne and Sydney) use annexes to extend the range of cultivated plant displays.

There are significant botanic gardens in each capital city, managed by the State or Territory Governments (except for Brisbane, which is municipal, and Canberra, which is Commonwealth). The Commonwealth also manages the Booderee Botanic Gardens at Jervis Bay on behalf of the traditional Aboriginal owners of the land, the Wreck Bay Aboriginal Community Council, under arrangements in place since December 1995. There are a number of smaller regional botanic gardens (about 120), many of which have been created in recent years, often under the auspices of local government.

The Council of Heads of Australian Botanic Gardens (CHABG), with its secretariat located at the Australian National Botanic Gardens in Canberra, coordinates the liaison between the various botanic gardens in Australia and represents these gardens in national and international matters.

The Australian National Botanic Gardens occupies a 90 hectare site on the lower slopes of Black Mountain in Canberra. It contains the national collection and one of Australia's most comprehensive displays of living native plants. Officially opened in 1970, in September 1991 it was proclaimed a reserve under the *National Parks and Wildlife Conservation Act 1975*, which provided legal protection for the collections. The Australian National Botanic Gardens maintains 100,000 plants constituting about one-third of the vascular plants recorded for Australia. It receives about 330,000 visitors each year, with peaks in October for the spring flowering and January for the holiday tourist season. It is on the Register of the National Estate in recognition of its importance as a research and teaching-based botanic garden established to display and interpret Australian flora. The Australian National Herbarium, containing the dried specimens of the living plants in the Gardens, is managed jointly with CSIRO Plant Industry as part of the Centre for Plant Biodiversity Research. It currently houses about one million herbarium specimens.

**12.6 SELECTED MUSEUMS, Key Aggregates—1997–98**

	Unit	Art museums	Historic places	Other museums	Total
Locations at end June 1998	no.	195	283	995	<b>1 473</b>
Admissions	'000	*5 010.0	2 158.5	6 116.6	<b>13 285.1</b>
Employment at end June 1998	no.	748	301	978	<b>2 027</b>
Volunteers during June 1998	no.	2 403	2 793	10 444	<b>15 640</b>
Income	\$m	38.3	*10.9	36.2	<b>85.5</b>
Expenses	\$m	35.4	8.0	33.1	<b>76.5</b>

Source: *Selected Museums, Australia, 1997–98 (4145.0)*.



## Attendance at botanic gardens

The Survey of Attendance at Selected Cultural Venues showed that over 5.4 million people (38.5% of the Australian population aged 15 and over) attended a botanic garden at least once in the 12 months ended 31 March 1995 (table 12.7).

**12.7 ATTENDANCE AT BOTANIC GARDENS—1995**

Attendees	'000
Sex	
Male	2 459
Female	2 951
Total	5 411
Age	
15–24 years	1 123
25–34 years	1 167
35–44 years	1 125
45–54 years	861
55–64 years	539
65 years and over	596
Birthplace	
Australian-born	3 868
Overseas-born	1 542

Source: Attendance at Selected Cultural Venues, March 1995 (4114.0).

## Botanic gardens industry

The ABS Survey of Zoos, Parks and Gardens in respect of 1996–97 showed that there were 53 employing organisations operating botanic gardens at the end of June 1997 (table 12.8). The total area of botanic gardens was 2,971 hectares. Some additional data on the botanic gardens industry are shown in *Chapter 21, Service industries*.

## Zoological parks and aquaria

Zoological parks and aquaria (i.e. animal, fauna, bird life, reptile parks; aquaria; aviaries; butterfly houses; dolphinariums) are primarily engaged in the breeding, preservation, study and display of native and/or exotic fauna in captivity, enclosures or natural environments, so as to be accessible to the general public. 'Marine parks' refers to legally declared marine parks such as the Great Barrier Reef Marine Park and the Great Australian Bight Marine Park. These have been created for conservation purposes, and are treated for statistical purposes as part of the natural environment.

**12.8 BOTANIC GARDENS, Key Aggregates—1996–97**

	Unit	
Organisations at end June 1997	no.	53
Locations at end June 1997		
Botanic gardens	no.	64
Arboreta	no.	8
Herbaria	no.	20
Total	no.	92
Hectares at end June 1997		
Botanic gardens	ha	2 905
Arboreta	ha	66
Total	ha	2 971
Employment at end June 1997		
Full-time	no.	948
Part-time	no.	182
Total	no.	1 129
Income	\$m	82.6
Expenses	\$m	70.2
Industry gross product	\$m	48.2

Source: Zoos, Parks and Gardens Industry, Australia, 1996–97 (8699.0).

Melbourne was the location of the first zoo in Australia, Melbourne Zoo being founded in 1857. There are now zoos and wildlife sanctuaries throughout Australia. As well as the four traditional zoos in Sydney, Melbourne, Adelaide and Perth, there are numerous wildlife parks and sanctuaries, some associated with urban zoos and others privately owned. Some of the better known zoological parks and sanctuaries are Healesville Sanctuary (60 kms from Melbourne), the Western Plains Zoo (Dubbo), Victoria's Open Range Zoo at Werribee (a Melbourne suburb), The Territory Wildlife Park (Darwin), Monarto Zoological Park (70 kms from Adelaide), Lone Pine Koala Sanctuary (Brisbane) and Currumbin Sanctuary (Gold Coast). The best known aquarium in Australia is Sea World at Surfers Paradise, Queensland.

The Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA) was formally established in 1990 at Auckland Zoo, New Zealand, and was incorporated in Australia in 1991. The Australian regional office is located in New South Wales. ARAZPA is administered by a Board of Management, with committees addressing the region's species management program, ethics, budget and policy review, and animal husbandry. While the association has an increasing number of individual members, there are currently 41 full institutional members, which are zoological parks and aquaria. A key purpose

of the association is to promote and maintain professional standards of operation in the zoological industry and to maximise its collective resources for the conservation of biodiversity.

The 1995 Survey of Attendance at Selected Cultural Venues shows that over 4.9 million people (35.3% of the Australian population aged 15 and over) visited a zoological park or aquarium during the 12 months ended March 1995 (table 12.9). Of these, 3.1 million (22.2% of the Australian population aged 15 and over) visited a zoo at least once during the year.

### 12.9 ATTENDANCE AT ZOOLOGICAL PARKS AND AQUARIA—1995

Attendees	'000
Sex	
Male	2 270
Female	2 696
Total	4 966
Age	
15–24 years	1 113
25–34 years	1 312
35–44 years	1 132
45–54 years	674
55–64 years	402
65 years and over	333
Birthplace	
Australian-born	3 632
Overseas-born	1 334

Source: Attendance at Selected Cultural Venues, March 1995 (4114.0).

## Zoos industry

An ABS survey of zoos, parks and gardens in respect of 1996–97 shows that there were almost eight million paid admissions to zoological parks and aquaria. Income from admissions accounted for 49% of total income. Table 12.10 provides details collected from this survey. Additional information on the zoos industry is shown in Chapter 21, *Service industries*.

### 12.10 ZOOLOGICAL PARKS AND AQUARIA, Key Aggregates—1996–97

Attendees	Unit	
Organisations at end June 1997		
Zoological gardens	no.	53
Aquaria	no.	12
Total organisations	no.	65
Locations at end June 1997	no.	69
Area of zoos, aquaria at end June 1997	ha	3 631
Employment at end June 1997		
Full-time	no.	1 268
Part-time	no.	677
Total employment	no.	1 946
Volunteers during June 1997	no.	1 591
Paid admissions	'000	7 978.8
Income		
Admissions income	\$m	69.2
Other income	\$m	73.2
Total income	\$m	142.4
Expenses	\$m	126.9
Operating surplus	\$m	16.3
Industry gross product	\$m	74.4

Source: Zoos, Parks and Gardens Industry, Australia, 1996–97 (8699.0).

## Libraries and archives

### Libraries

The main activities of libraries are the acquisition, collection, organisation, conservation and loan of library materials such as books, magazines, manuscripts, musical scores, maps or prints.

In 1960, the National Library of Australia Act created the National Library of Australia from the former Commonwealth National Library, which had served as both as a national library and parliamentary library. The National Library's primary responsibilities are to maintain, develop and make available a national collection which is comprehensive in Australian history, and to foster cooperation among Australian libraries on appropriate matters.

The Library acquires Australian printed material (monographs, serials, maps, music) using the Legal Deposit provisions of the *Copyright Act 1968* and other formats and materials through purchase or voluntary deposit. The Library's collecting policy is described in detail in its publication, *National Library of Australia Collection Development Policy*.



Resource sharing services in Australian libraries are currently dominated by the centralised nature of Kinetica (formerly Australian Bibliographic Network (ABN)) services. The key component of these services is the National Bibliographic Database (NBD) which records the locations of more than 30 million items in over 900 Australian libraries. The NBD is complemented by a National Chinese Japanese Korean database. Through the provision of cataloguing, interlibrary lending and document delivery functions, these two databases form the basis of resource sharing services. The Library expects that regional and sectoral networks will strengthen in the coming years as the environment becomes increasingly competitive with the growing involvement of international networks and commercial organisations.

The National Library's Internet site has been developed as a major source of information about the Library, its services and collections and also as a means of public access to Internet based resources. The Internet site provides access, through the Images1 database service, to digital surrogates of material in the Pictorial collection. Digitisation of other collection materials is not yet routine, but trials of maps and manuscripts digitisation have commenced. In the six months to June 1999, the Library's Internet server was accessed on average 70,000 times each day.

First established in 1937 as the Australian Institute of Librarians, the Australian Library and Information Association (ALIA) is the major organisation devoted to promoting quality library and information services and the professionalism of library and information personnel. The Association's national headquarters are in Canberra, with a branch in each State and Territory. Its organisational structure includes representation of sectional interests, such as public, educational and special librarians, and special interest groups interested in Asian-Pacific libraries, information literacy, rural and isolated libraries, distance education and other subjects.

The Association monitors educational standards through recognition of tertiary courses in library and information studies for librarians and library technicians. It promotes continuing professional education and specific issues such as community access to information and information literacy. A current interest is ensuring equity of access to online information.

In 1996 ALIA launched its Aboriginal and Torres Strait Islander recruitment and career development strategy and, in 1998, introduced

Internet services and training to five remote Aboriginal communities, as part of the Commonwealth Government's Online Public Access Initiative for regional and remote areas.

In 1997, ALIA and the Australian Council of Libraries and Information Services (ACLIS), the body dealing with institutional needs and the support of research and development, agreed to work together to create one organisation to represent the Australian library and information services sector. At the end of 1998, ACLIS ceased operation. ALIA has undertaken some of the functions of ACLIS, such as document delivery policy and copyright services. ALIA is a member of the Australian Libraries Copyright Committee, the Australian Digital Alliance and the International Federation of Library Associations and Institutions (IFLA), which represents professional and community interests in library and information services at an international level.

### Public Lending Right

Public Lending Right (PLR) is a Commonwealth Government cultural program, administered by the Department of Communications, Information Technology and the Arts, which makes payments to eligible Australian book creators and publishers in recognition that income is lost from the free multiple use of their books in public lending libraries. Australia is one of 15 countries that operate a PLR program.

The *Public Lending Right Act 1985* provides the legislative framework for the PLR Scheme. A Public Lending Right Committee is appointed by the Minister to administer the Scheme, and the Act provides for the gazettal of a PLR Scheme by the Minister.

Payment is determined by the number of copies of eligible books that are held in public lending libraries. This information is obtained from an annual survey of the books held in a sample of public lending libraries selected by the ABS. If 50 or more copies of an eligible book are estimated to be held in Australian public lending libraries, a payment may be made.

Books are surveyed annually for three consecutive financial years following their year of publication. If, in the third year, a book is still held in sufficient numbers in public lending libraries, it will be resurveyed once every three years. Books scoring less than 50 copies in the third or subsequent surveys are dropped from the survey cycle.

There were 8,127 book creators and their publishers who received PLR payments totalling more than \$5.2m for the 1998–99 program. The PLR rates of payment under the current PLR Scheme are \$1.23 per copy of each eligible book for creators and \$0.3075 per copy of each eligible book for publishers.

## Library attendance

The 1995 Survey of Attendance at Selected Cultural Venues provides data on persons aged 15 years and over who attended a national, State or local library at least once over the 12 month survey period. Table 12.11 shows that more than 5.4 million persons (38.4% of the Australian population aged 15 and over) attended one of these libraries at least once during the 12 months ended March 1995.

**12.11 ATTENDANCE AT LIBRARIES(a)—1995**

Attendees	'000
Sex	
Male	2 231
Female	3 172
Total	5 403
Age	
15–24 years	1 219
25–34 years	1 045
35–44 years	1 217
45–54 years	807
55–64 years	470
65 years and over	646
Birthplace	
Australian-born	3 983
Overseas-born	1 420

(a) National, State or local library only.

Source: Attendance at Selected Cultural Venues, March 1995 (4114.0).

## Libraries industry

An ABS survey of libraries in respect of 1996–97 showed that there were 89.6 million visits to public libraries, which represented nearly five visits per person for the year. These visits resulted in public library loans of 153.9 million books and other materials. Other data collected from the survey are shown in table 12.12. Some additional data on the libraries industry are shown in *Chapter 21, Service industries*.

## Reading habits and book buying

A household survey conducted in February 1995 by the Population Survey Monitor revealed that 87.9% of males and 82.4% of females aged 18 and over had read a newspaper in the week prior to the survey, and 46.8% of males and 57.8% of females aged 18 and over had read a book in the week prior to the survey.

An ABS Survey of Aspects of Literacy in 1996, which measured the ability of people aged 15–74 to use and understand everyday prose and documents (magazine articles, brochures, medicine labels, bus timetables etc.), found that 63.8% of people read newspapers or magazines daily, 33.2% read books daily and 11.1% used a public library at least weekly (table 12.13).

In all, about 2.6 million people were assessed as having very poor prose skills (Level 1 rating). Of these, 52.7% read newspapers or magazines daily, 21.4% read books daily and 6.3% used a public library at least once a week.

In contrast, 70.4% of the 2.3 million people with good/very good prose literacy (Level 4/5 rating) read newspapers or magazines daily, 47.0% read books daily, and 15.8% used a public library at least weekly.

**12.12 LIBRARIES, Key Aggregates—1996–97**

	Unit	Public libraries	Archival service organisations	Other libraries	Total
Organisations at end June 1997	no.	527	9	28	564
Locations at end June 1997	no.	1 427	11	30	1 468
Employment at end June 1997					
Full-time	no.	5 940	763	266	6 969
Part-time	no.	4 722	122	64	4 908
Total employment	no.	10 662	885	330	11 877
Income	\$m	558.4	80.6	27.7	666.6
Expenses	\$m	529.1	76.8	24.6	630.5
Industry gross product	\$m	343.3	42.8	20.4	406.4

Source: Libraries and Museums, Australia, 1996–97 (8649.0).

12.13 SELECTED LITERACY-RELATED ACTIVITIES IN DAILY LIFE, By Prose Skill Level—1996

Skill level(a)	Read newspapers or magazines daily		Read books daily		Wrote material more than one page in length at least weekly		Used a public library at least weekly		Total persons
	'000	%	'000	%	'000	%	'000	%	
Level 1	1 373.1	52.7	557.6	21.4	366.9	14.1	164.4	6.3	2 607.4
Level 2	2 310.0	63.6	997.9	27.5	720.7	19.8	323.4	8.9	3 631.9
Level 3	3 124.6	66.9	1 748.6	37.5	1 299.8	27.8	612.4	13.1	4 668.9
Level 4/5	1 627.1	70.4	1 086.7	47.0	856.6	37.0	366.0	15.8	2 312.5
<b>Total</b>	<b>8 434.8</b>	<b>63.8</b>	<b>4 390.7</b>	<b>33.2</b>	<b>3 244.0</b>	<b>24.5</b>	<b>1 466.3</b>	<b>11.1</b>	<b>13 220.8</b>

(a) Level 1—very poor, Level 2—poor, Level 3—average, Level 4/5—good/very good.

Source: *Aspects of Literacy: Assessed Skill Levels, Australia, 1996* (4228.0).

Book publishing

Data were collected from 261 businesses which employed staff and were predominantly engaged in book publishing in 1997–98. Table 12.14 shows that these organisations generated \$1,242.0m in turnover, of which \$1,035.6m was from the sales of books. Of total book sales, \$623.5m was attributed to Australian titles.

12.14 BOOK PUBLISHERS, Key Aggregates—1997–98

	Unit	
Organisations at end June 1998	no.	261
Sales of all books	\$m	1 035.6
Sales of other products	\$m	150.8
Total turnover	\$m	1 242.0
Average turnover per business	\$m	4.8
Wages and salaries paid	\$m	205.2
Royalties and fees paid	\$m	88.5
Total costs	\$m	1 133.0
Average costs per business	\$m	4.3
Sales of Australian titles	\$m	623.5
Royalties and fees paid per Australian book sale	%	14.2
Operating profit before tax	\$m	103.3
Profit margin	%	8.3

Source: *Book Publishers, Australia, 1997–98* (1363.0).

number of archival bodies, funded by governments and private sources, employing specialist staff to serve the legal, administrative and research needs of individuals and organisations.

The National Archives of Australia is the Commonwealth organisation, established by the *Archives Act 1983*, responsible for the broad management of the range of Commonwealth records. It has offices in Canberra, all States and the Northern Territory. It administers the legislative framework for Commonwealth records management (including arrangements for the disposal of records), maintains information systems, provides appropriate custody and preservation arrangements (including archival storage) and makes records available under the relevant legislation. Records covered by the Act occur in all formats including files, index cards, architectural models, photographs, films, video tapes and electronic media. The National Archives also curates touring exhibitions and produces publications based on its collections.

Each State and Territory Government also maintains its own archives and provides for public access to records. In addition, archives have been established by some churches, business corporations, universities and city councils. The Australian War Memorial collects private material concerning Australians at war, and is also custodian of certain official Commonwealth records relating to war or warlike operations. ScreenSound Australia collects cultural material relevant to the film and sound media. Other corporate and private records continue to be collected by some State archives offices, libraries and universities.

Many of the bodies in the archives or records field are members of the Australian Council of Archives which provides a means of promoting cooperation on issues of common concern.

Archives

Archives are institutions whose primary function is the permanent preservation of unique records, selected because of their administrative, financial, legal or other information value. These records are generally no longer required for the conduct of current activities by government agencies, non-government organisations or private individuals. While much archival work is an adjunct to other activity, there is a growing

The National Archives has established an Internet site 'Archives of Australia' (at <http://www.archivenet.gov.au>), which enables all other archives in Australia to place information about themselves and their holdings on the Internet.

## Music

Music covers all areas of the industry: composition; live performances ranging from the latest pop styles to classical instrumental, vocal and orchestral forms; recording and publishing; studio and concert performances; and the marketing of sheet music.

## Music businesses

The first comprehensive study of Australian music businesses by the ABS shows that in 1995–96 they had an income of \$1,064.0m (table 12.15), about the same size as Australia's book publishing industry. The 541 businesses comprised record companies, distributors, manufacturers of recorded music, music publishers and sound recording studios.

Total employment was 3,886 persons (including working proprietors) with 60% employed by record companies and distributors, 21% by sound recording studios and the remainder by music publishers and manufacturers.

**12.15 MUSIC BUSINESSES, Key Aggregates—1995–96**

	Unit	Record companies and distributors	Manufacturers of recorded music	Music publishers	Sound recording studios	Total
Businesses at end June 1996	no.	153	23	73	292	541
Employment at end June 1996	no.	2 324	493	269	800	3 886
Income	\$m	792.4	95.0	119.9	56.6	1 064.0
Expenses	\$m	751.5	82.2	112.1	48.8	994.6
Net capital expenditure	\$m	24.5	9.7	6.9	6.5	47.5
Operating profit before tax	\$m	48.5	15.5	8.3	7.8	80.1
Profit margin	%	6.1	16.3	6.9	13.8	7.5
Business gross profit	\$m	162.1	46.2	17.2	29.9	255.4

Source: *Business of Music, Australia* (4143.0).

## Attendance at music performances

Attendance at music performances is a significant aspect of the cultural life of Australians.

Table 12.16 shows the number of people attending popular and classical music concerts in the 12 months to March 1995. Almost 3.8 million people (26.9% of the Australian population aged 15 and over) attended at least one popular music concert, while 1.1 million (7.7% of the Australian population aged 15 and over) attended at least one classical music concert.

**12.16 ATTENDANCE AT MUSIC PERFORMANCES—1995**

Attendees	Popular music concert '000	Classical music concert '000
<b>Sex</b>		
Male	1 861	437
Female	1 930	644
<b>Total</b>	<b>3 791</b>	<b>1 081</b>
<b>Age</b>		
15–24 years	1 216	163
25–34 years	970	181
35–44 years	731	219
45–54 years	497	231
55–64 years	217	141
65 years and over	161	147
<b>Birthplace</b>		
Australian-born	2 940	758
Overseas-born	851	324

Source: Attendance at Selected Cultural Venues, March 1995 (4114.0).

## Musica Viva

Musica Viva is Australia's national chamber music entrepreneur. A non-profit company founded in 1945 with headquarters in Sydney, Musica Viva has a Board with members throughout Australia, a State committee structure and branch offices in capital cities.

During 1998, it presented concerts to nearly 443,000 patrons in Australia and to an additional 50,000 patrons overseas (table 12.17).

In 1998, Musica Viva in Schools started in Singapore, involving about 23,800 school students.

**12.17 MUSICA VIVA AUDIENCES(a)**

	1995	1996	1997	1998
	no.	no.	no.	no.
New South Wales	265 194	288 993	276 889	291 292
Victoria	41 150	41 564	41 929	42 853
Queensland	8 385	6 735	11 118	15 303
South Australia	10 035	19 681	24 209	23 089
Western Australia	32 931	30 161	30 665	43 015
Tasmania	11 567	10 103	8 060	9 599
Northern Territory	..	..	5 562	4 703
Australian Capital Territory	10 478	14 210	13 919	12 911
<b>Australia</b>	<b>379 740</b>	<b>411 447</b>	<b>412 351</b>	<b>442 765</b>
Overseas	52 000	21 000	20 600	50 000
<b>Total</b>	<b>431 740</b>	<b>432 447</b>	<b>432 951</b>	<b>492 765</b>

(a) Includes audiences at regional touring concerts, education concerts, subscription concerts and special events.

Source: Musica Viva.

## Symphony Australia Network

The Symphony Australia Network comprises Australia's six major professional symphony orchestras—Adelaide Symphony Orchestra, Melbourne Symphony, Queensland Symphony Orchestra, Sydney Symphony Orchestra, Tasmanian Symphony Orchestra and West Australian Symphony Orchestra—and the national service organisation, Symphony Australia. The network was established as a division of the Australian Broadcasting Corporation (ABC) over a number of years from 1932. The orchestras and the national service organisation now operate as subsidiary companies of the ABC. The orchestras present live concerts in Australia's major performing arts venues and free open-air concerts, present broadcasts on ABC radio and television, make recordings for international record labels, accompany opera and ballet performances, undertake international tours, and give performances in regional and country areas throughout Australia. In 1997–98, the six orchestras presented more than 700 concerts to audiences totalling more than one million people (table 12.18) and reached much larger audiences through their recording and broadcast activities.

**12.18 SYMPHONY ORCHESTRAS, Performances and Total Attendances**

	1996–97		1997–98	
	Number of concerts	Total attendances	Number of concerts	Total attendances
Type of performance	no.	no.	no.	no.
Paid orchestral concerts	547	674 423	511	665 421
School concerts	179	102 869	184	95 070
Free concerts	15	232 185	24	297 520
<b>Total</b>	<b>741</b>	<b>1 009 477</b>	<b>719</b>	<b>1 058 011</b>

Source: Australian Broadcasting Corporation, Annual Report 1997–98.

## Performing arts

The performing arts encompass opera and musical comedy, theatre in its various forms and the various styles of dance. They also include artists working as acrobats, clowns, magicians, comedians, revue artists, poetry readers, and other performing artists.

### Attendance at the performing arts

The popularity of musicals is reflected in attendance numbers at the performing arts. Table 12.19 shows that in 1995 over 2.7 million people (19.3% of the Australian population aged 15 and over) attended at least one performance of musical theatre while 1.4 million (10% of the Australian population aged 15 and over) attended at least one dance performance.

## Performing arts industries

There were 1,399 employing businesses mainly engaged in the performing arts industries at the end of June 1997. Of these, 881 mainly provided live theatrical or musical presentations (i.e. music and theatre productions); 150 operated performing arts venues such as concert halls and entertainment centres; and 369 provided services to the arts industry such as casting agency operation, costume design and set designing. They employed 13,359 persons at the end of June 1997. During 1996–97 they accrued total income of \$1,281.3m, of which \$341.8m was from box office income and \$294.3m from government funding. There were also 19 theatre ticket agency operators at the end of June 1997. Key data from the survey are shown in table 12.20. Some additional data on the performing arts industry are shown in *Chapter 21, Service industries*.

**12.19 ATTENDANCE AT THE PERFORMING ARTS—1995**

	Dance performance	Theatre		Other performing arts
		Musical	Other	
Attendees	'000	'000	'000	'000
Sex				
Male	515	1 021	906	1 210
Female	892	1 701	1 430	1 425
<b>Total</b>	<b>1 408</b>	<b>2 722</b>	<b>2 336</b>	<b>2 634</b>
Age				
15–24 years	310	531	547	669
25–34 years	278	501	507	707
35–44 years	319	530	480	590
45–54 years	254	544	401	349
55–64 years	121	303	216	169
65 years and over	125	313	186	152
Birthplace				
Australian-born	1 030	2 092	1 776	2 074
Overseas-born	378	630	561	560

Source: Attendance at Selected Cultural Venues, Australia, March 1995 (4114.0).

**12.20 PERFORMING ARTS INDUSTRIES, Key Aggregates—1996–97**

	Unit	Music and theatre production	Performing arts venues	Services to the arts	Total
Businesses at end June 1997	no.	881	150	369	1 399
Performing arts spaces at end June 1997	no.	48	315	..	362
Employment at end June 1997	no.	6 082	5 601	1 676	13 359
Income					
Income from box office	\$m	264.9	76.9	..	341.8
Other income	\$m	329.4	254.7	355.5	939.5
Total income	\$m	594.3	331.6	355.5	1 281.3
Expenses	\$m	591.8	320.4	332.9	1 245.2
Industry gross product	\$m	223.5	112.7	64.8	401.1

Source: *Performing Arts Industries, Australia, 1996–97* (8697.0).

**Opera Australia**

In late 1996, The Australian Opera merged with the Victoria State Opera (VSO) to form a new company, Opera Australia, which is the largest performing arts organisation in Australia. In 1998 it presented 237 performances to total audiences in excess of 268,800 (table 12.21). This excluded people who received complimentary tickets. In 1997–98 Opera Australia employed 1,175 people. (The figures in the table for 1995 and 1996 relate solely to the activity of the former Australian Opera.)

A permanent rehearsal and administration home in Melbourne serves as the base for OzOpera, the research and development arm of Opera Australia.

**12.21 OPERA AUSTRALIA, Key Indicators(a)**

	1995	1996	1997	1998
	no.	no.	no.	no.
Employees	1 280	1 295	1 212	1 175
Performances	235	249	243	237
Attendances	308 561	284 500	293 300	268 866

(a) Excludes operations of the Australian Opera and Ballet Orchestra. Excludes Victoria State Opera before 1997.

Source: *Opera Australia*.

**The Australian Ballet**

The Australian Ballet was established in 1961 as the nation's classical ballet company. The company performs in most Australian capital cities every year and occasionally tours overseas.

The Australian Ballet has an international reputation as one of the top ballet companies in the world. Table 12.22 shows the number of performances given by the Australian Ballet, and its employment by category, over the years 1993 to 1998.

**Film and video****Film and video production**

Australia has a well developed audiovisual production industry which is composed, for the most part, of small specialised companies. They produce programs ranging from feature films to sports coverage, documentaries and television commercials. A relatively small number of companies engage exclusively in film and television drama production. The majority specialise in the production of commissioned programs such as commercials and corporate communications.

The major market for Australian audiovisual producers is the domestic television broadcast industry. Export markets are important mainly for feature films and television dramas, some high-budget documentaries and some commercials.

The film and video production industry comprises businesses mainly engaged in the production of motion pictures on film or video tape for theatre or television projection. Services such as casting, film editing and titling are also included.



**12.22 THE AUSTRALIAN BALLET, Performances and Employment**

	1993	1994	1995	1996	1997	1998
<b>PERFORMANCES</b>						
Theatres in Australia						
New South Wales	79	82	81	81	81	94
Victoria	61	60	61	60	62	63
Queensland	9	11	11	10	10	7
South Australia	9	10	7	7	6	8
Western Australia	—	—	6	—	6	—
Australian Capital Territory	10	—	6	6	8	7
Other venues in Australia						
Regional (The Dancers Company)	32	27	18	28	10	18
Open-air	1	1	1	1	19	1
ABC-TV simulcasts	1	1	2	—	—	—
Overseas	18	14	—	14	—	—
<b>Total performances</b>	<b>220</b>	<b>206</b>	<b>193</b>	<b>207</b>	<b>202</b>	<b>198</b>
<b>EMPLOYMENT</b>						
Dancers	65	65	65	62	62	62
Staff						
Artistic	8	9	9	8	12	12
Music	4	5	5	5	6	5
Production and theatre	27	29	24	25	23	24
Marketing and publicity	15	19	23	23	22	21
Administration and finance	21	20	20	21	19	20
<b>Total employment</b>	<b>140</b>	<b>147</b>	<b>146</b>	<b>144</b>	<b>144</b>	<b>144</b>

Source: *The Australian Ballet, Annual Reports.*

Table 12.23 shows the findings of a survey of the film and video production industry conducted by the ABS in respect of 1996–97. At the end of June 1997, there were 2,003 businesses in the film and video production industry, and these businesses employed a total of 9,438 persons. In 1996–97 these businesses generated \$681.3m from the production of commissioned works, \$222.6m from the provision of production and post-production services and \$164.8m from the sale of rights for completed works. The industry had a total gross product of \$440.4m.

During 1996–97, businesses in the television services industry, film and video production industry, and film and video distribution industry incurred total film and video production costs of \$1,576.9m. Of these costs, \$1,095.4m was spent on productions specifically for television, \$233.7m on commercials and advertisements, and \$247.7m on productions other than for television. These businesses completed, or were working on, 6,644 productions other than for television, of which 4,560 were corporate/marketing/training videos and 59 were feature films.

**12.23 FILM AND VIDEO PRODUCTION INDUSTRY, Key Aggregates—1996–97**

	Unit	
Businesses at end June 1997	no.	2 003
Employment at end June 1997	no.	9 438
Sales of goods and services	\$m	1 104.1
All other income	\$m	24.4
Total expenses	\$m	1 195.5
<b>Industry gross product</b>	<b>\$m</b>	<b>440.4</b>

Source: *Film and Video Production and Distribution, 1996–97 (8679.0).*

The Commonwealth Government provides assistance and encouragement, through measures such as the investment program of the Australian Film Finance Corporation, the development program of the Australian Film Commission and the Australian content regulations of the Australian Broadcasting Authority, for the production of high cost feature films, television dramas and documentaries. Table 12.24 shows the number and value of both Australian titles produced in Australia and overseas and foreign titles shot in Australia from 1993–94 to 1997–98.



**12.24 FILM AND VIDEO PRODUCTION INDUSTRY, Number and Value of Titles(a)**

Type of film	1993-94		1994-95		1995-96		1996-97		1997-98	
	no.	\$m	no.	\$m	no.	\$m	no.	\$m	no.	\$m
Features	31	210	20	113	31	241	39	249	41	246
Mini-series	4	19	11	54	15	117	10	97	10	52
Series and serials	16	114	18	113	22	103	23	179	27	213
Telemovies	14	24	22	53	18	38	15	36	12	40
<b>Total</b>	<b>65</b>	<b>367</b>	<b>71</b>	<b>333</b>	<b>86</b>	<b>499</b>	<b>87</b>	<b>561</b>	<b>90</b>	<b>551</b>

(a) Includes co-productions, foreign titles shot in Australia, and Australian titles shot overseas.

Source: Australian Film Commission.

**Film and video distribution**

The film and video distribution industry comprises businesses mainly engaged in leasing or wholesaling motion pictures on film or video tape to organisations for exhibition or sale. Agents mainly engaged in leasing and wholesaling films and videos to organisations are also included.

Table 12.25 shows that, at 30 June 1997, there were 66 businesses in the industry, employing 1,341 people. In 1996-97 these businesses generated \$973.9m in total income and had an operating profit before tax of \$3.1m. The main sources of income were \$687m from the sales, rental or lease of prerecorded video tapes, disks, films and interactive software, and \$156m from the provision of channels to pay television broadcasters.

**12.25 FILM AND VIDEO DISTRIBUTION INDUSTRY, Key Aggregates—1996-97**

	Unit	
Businesses at end June 1997	no.	66
Employment at end June 1997	no.	1 341
Sales of goods and services	\$m	963.4
All other income	\$m	10.5
Total expenses	\$m	970.8
Industry gross product	\$m	211.0

Source: Film and Video Production and Distribution, Australia, 1996-97 (8679.0).

**Motion picture exhibition**

The motion picture exhibition industry comprises businesses mainly engaged in screening motion pictures on film or video tape. It also includes businesses mainly engaged in drive-in theatre operation, cinema operation and film or video festival operation.

Some of the findings of a survey on the motion picture exhibition industry, conducted by the ABS in respect of 1996-97, are shown in table 12.26. At the end of June 1997, there were 188 businesses in the industry, employing 7,739 people.

The motion picture exhibition industry had an operating profit before tax of \$120m for 1996-97, which represented an profit margin of almost 15%.

At the end of June 1997, there were 325 cinema sites and 28 drive-in sites in Australia. For 1996-97, there were 73 million paid admissions to cinemas and drive-ins. Additional information on the industry is shown in *Chapter 21, Service industries*.

**12.26 MOTION PICTURE EXHIBITION INDUSTRY, Key Aggregates—1996-97**

	Unit	
Number of businesses	no.	188
Employment	no.	7 739
Paid admissions to cinemas	'000	73 262
Total expenses	\$m	713.2
Gross income	\$m	832.2
Operating profit before tax	\$m	119.9

Source: Motion Picture Exhibition, Australia, 1996-97 (8654.0).

**Cinema attendance**

The March 1995 Survey of Attendance at Selected Cultural Venues provided the first ABS figures for cinema attendances in Australia for persons aged 15 years and over. Over 8.7 million persons (62.1% of the Australian population aged 15 and over) attended a hardtop cinema, drive-in or other public screening of a film at least once in the 12 months ending 31 March 1995 (table 12.27).

**12.27 ATTENDANCE AT CINEMAS—1995**

Attendees	'000
Sex	
Male	4 075
Female	4 658
Total	8 734
Age	
15–24 years	2 351
25–34 years	2 051
35–44 years	1 829
45–54 years	1 255
55–64 years	627
65 years and over	620
Birthplace	
Australian-born	6 720
Overseas-born	2 014

Source: *Attendance at Selected Cultural Venues, March 1995 (4114.0)*.

## Multimedia

Multimedia is a significant creative medium. It is a presentation, by means of an electronic non-linear delivery system, of some combination of media forms such as voice, music, video, photographs, graphics, animation and text. An electronic non-linear delivery system is a combination of hardware and software which gives the user control over the order in which content is accessed.

Until a few years ago, most computer software was aimed primarily at business and education markets. However the household market has grown rapidly in recent years. In May 1999, 47% (3,245,000) of households in Australia had a computer at home, a 13% increase over May 1998. In 1998, of the households which frequently used a computer, 75% (1,948,000) used a CD-ROM drive. Since 1993, most new computers sold in Australia have been equipped with CD-ROM drives, increasing the market for multimedia products on CD-ROMs.

In 1998, of the 5.7 million persons aged 5 years and over who frequently used a home computer, 57% used the home computer to play games, 54% to do work relevant to studies, 39% for work-related activities, 35% to keep personal or family records, 27% for Internet-related activities, 7% to access other online services/databases apart from the Internet, and 3% for other activities.

Developments in new media have made on-line services, such as the Internet, increasingly easy for people to use. At May 1999, 22% (1,524,000) of households had Internet access, a 57% increase over May 1998. Internet access was more

prevalent in households comprising a couple with children (36% of such households) than in households comprising a couple with no children (16% of these households) and single person households (8% of these).

Over a quarter (27% or 480,000) of persons aged 18–24 accessed the Internet from home, compared with 21% (885,000) of 25–39 year olds, 20% (771,000) of 40–54 year olds, and 5% (174,000) of persons aged 55 years and over. For more information see *Chapter 24, Communications and information technology*.

The Department of Communications, Information Technology and the Arts (DOCITA), through multimedia programs such as Australia on CD and Australia's Cultural Network, has undertaken to promote and provide access to Australia's cultural collections, while forming partnerships with the cultural institutions and multimedia producers involved. The Department has developed the Internet site ArtsInfo as a single point of access to the Australian cultural sector and has supported the development of the Australian Museums On Line site.

The *Australia on CD* program is designed to showcase a wide range of Australian cultural endeavour, artistic performance and heritage achievements, and to foster the development of the Australian multimedia industry.

Through the *Australia on CD* program, the Commonwealth Government has funded the production of ten interactive CD-ROMs covering areas such as Australia's prehistory, the environment, the performing and visual arts, sport, science and rock'n'roll. Two copies of each title have been distributed to all Australian primary and secondary schools, public libraries, Austrade offices, overseas missions and members of Parliament.

Australia's Cultural Network is the on-line gateway to Australia's cultural organisations, resources, activities and events. The Network has two main objectives: to improve and develop on-line access to and participation in Australian cultural endeavour, activities and events; and to improve the prosperity of Australian cultural organisations and cultural workers. This gateway Internet site provides fast access to hundreds of cultural Internet sites nationwide. A national calendar of cultural events is a key feature of the site, with a range of resources to assist Australian cultural industries.

The *Performing Arts Multimedia Library* is a joint project between DOCITA and Cinemedia and involves the creation of a digital library of significant Australian performances, new and existing, across the range of live performance, for use in multiple electronic environments such as the Internet, Pay TV, video and multimedia. The project has been used as a testbed program for government and performing arts companies to identify and attempt to resolve the legal, contractual and technical issues associated with the recording and electronic distribution of recorded performances.

Australian Museums On Line (AMOL) is the electronic gateway to Australian museums, galleries and cultural institutions. AMOL is an initiative of the Heritage Collections Council, which coordinates national approaches to caring for, and promoting access to, Australia's heritage collections. AMOL's Guide to Australian Museums lists over 1,000 national, regional and local museums across Australia, with information being accessible through a range of search options such as region, collection type and collection strength. The Open Collections section of AMOL offers a searchable collection database comprising almost half a million object level records, including over 50 full collections. It also features a growing number of knowledge-based stories about various collections and objects within collections. The Museum Craft section provides access to a range of resources for museums workers, including conservation resources and information, online discussion forums, an online Open Museum Journal, links to important Australian and overseas museums sites and information about contacts and associations, jobs and training, events, publications and grants. Since October 1998, the site has averaged well over 250,000 hits per month, currently representing more than 9,000 users.

*ArtsInfo* brings together information on cultural grants, support and industry development programs offered by the three levels of government and their agencies, as well as assistance through corporations, foundations and non-government bodies. The ArtsInfo home page on the Internet provides additional services

including the Smarts industry magazine on-line, and a resource section containing cultural statistics and references to accredited training courses, an on-line cultural education forum, and industry bulletin boards. ArtsInfo includes a cultural business directory showcasing Australia's cultural products and services and a directory of cultural festivals.

## Radio and television broadcasting

Broadcasting services in Australia are regulated primarily through the *Broadcasting Services Act 1992*. The Act identifies and defines categories of broadcasting services, establishes regulatory arrangements for all but the national broadcasting services, and establishes the Australian Broadcasting Authority (ABA) as the independent regulator for radio and television in Australia.

The Act defines six categories of broadcasting service covering both radio and television:

- national broadcasting services—the Australian Broadcasting Corporation (ABC) and the Special Broadcasting Service (SBS) are regulated through separate legislation;
- community broadcasting services—non-profit free-to-air services provided for community purposes;
- commercial broadcasting services—free-to-air radio and television services operated for profit and funded predominantly by advertising revenue;
- subscription broadcasting services—services with general appeal to the public and funded predominantly by customer subscriptions;
- subscription narrowcasting services—services with limited appeal to the public (either because of content, or availability) and funded predominantly by customer subscriptions; and
- open narrowcasting services—services providing programs targeted to special interests groups (i.e. foreign language), or of limited appeal because of content or availability, and not funded by subscriptions.

## National Transmission Network

In March 1999, the telecommunications company ntl won the bid to own and operate the National Transmission Network, previously managed by the National Transmission Agency. The transmission network comprises 560 strategic sites across metropolitan, regional and rural Australia and ntl's core business is to transmit the analogue television and radio broadcasts by the ABC and SBS. Commercial and community broadcasters, emergency services and telecommunications operators have also leased space on the sites. The company will continue to invest in the network infrastructure to maintain and improve the range, reach and quality of transmission services across Australia. Australia will enter the digital era of broadcasting by January 2001, and ntl will have a major role in migrating the broadcasting industry to the new digital platform.

## Australian Broadcasting Corporation (ABC)

The ABC has been in existence since 1932 as Australia's only national, non-commercial broadcaster. At 30 June 1999, the ABC provided:

- six distinctly targeted radio networks across Australia on over 6,000 transmitters which include Metropolitan Radio stations in nine cities, Regional Radio with 39 regional stations and 11 smaller studios, Radio National, ABC-FM, and the Triple-J youth radio network;
- a national television service carried on about 600 transmitters;
- Radio Australia, an international radio service broadcast by shortwave to Papua New Guinea and the Pacific and via satellite to the Asia-Pacific regions in English and other languages;
- a 24-hour news and parliamentary broadcast radio service to all capital cities (except Darwin), and to Newcastle;
- an international network of press offices; and
- an on-line service which includes News and program related sites.

The ABC also operates a network of retailing outlets (24 shops and 119 ABC centres) known as ABC Enterprises. Operations include the production of books, classical and contemporary

recordings, audio cassettes, videos, multimedia and licensed products, and music and magazine publishing.

The ABC has corporatised its symphony orchestras through a new subsidiary company, Symphony Australia (see table 12.18 and accompanying text).

## Special Broadcasting Service (SBS)

SBS was established by the Commonwealth Government in 1978. Its principal function is to provide multilingual and multicultural radio and television services that inform, educate and entertain all Australians and, in doing so, reflect Australia's multicultural society.

Both SBS Radio and SBS Television broadcast nationally. The radio service has its origins in 1975 when ethnic radio stations 2EA in Sydney and 3EA in Melbourne began limited broadcasts. By 1996 SBS Radio had expanded to a five signal service broadcasting in 68 languages. It operates a national signal heard in all capital cities and key regional centres, and separate AM and FM signals in Sydney and Melbourne.

Each week, SBS Radio broadcasts more than 650 hours of programming, including news—local, national and international—and a mixture of current affairs, interviews, community information, sport and music. It broadcasts in more languages than any other radio network in the world.

SBS Television, which began in 1980, broadcasts nationally and services areas containing more than 17 million people. More than half of the programs broadcast are in languages other than English, but they are made accessible to all Australians through subtitling. SBS Television gathers its programs from more than 600 national and international sources, and broadcasts in more than 60 languages. SBS shows more movies and documentaries than any other free-to-air television station in Australia. In 1998, documentaries accounted for about 12% of the television schedule, and about 300 first-run movies are broadcast each year. SBS Television's coverage of international news and sports is a highlight. Each week, the WorldWatch program broadcasts 22 different news services from 18 countries.

Since 1994, SBS Independent (SBSI) has been at the forefront of local film and television productions by independent Australian filmmakers. SBSI has commissioned more than 300 hours of drama, documentaries and animation. Among this output were more than 40 Indigenous documentaries and dramas.

In 1996, the Federal Government announced a five-year scheme to extend the SBS signal to 30 regional areas (each containing more than 10,000 people) under its \$120m Television Fund. This will make SBS available to an additional one million potential viewers.

## Radio and television operations

### Australian Broadcasting Authority

The Australian Broadcasting Authority (ABA), established in October 1992 under the *Broadcasting Services Act 1992*, is the broadcasting regulator for radio and television in Australia. As well as planning the availability of segments of the broadcasting services bands (VHF/UHF television, FM and AM radio), the Authority has the power to allocate, renew, suspend and cancel licences and collect any fees payable for those licences.

Following the assent of the *Television Broadcasting Services (Digital Conversion) Act 1998*, as Schedule 4 of the *Broadcasting Services Act 1992*, the ABA is empowered to regulate for the introduction of digital broadcasting services in Australia from 1 January 2001. The ABA is working with the broadcasting industry to deliver commercial and national television conversion schemes, digital channel plans and implementation plans.

The national and commercial broadcasters will simulcast their signal with the analog service for eight years, using the DVB-T standard, on adjacent VHF and UHF channels where possible, in the broadcasting services bands. Provision also has been made for datacasting services to use the broadcasting services bands from the same date.

In March 1998, the Minister for Communications, Information Technology and the Arts announced that commercial, community and national (ABC and SBS) radio broadcasters would be able to convert to digital using the Eureka standard, but would be required to transmit their programs in analog mode for a simulcasting period.

Digital radio broadcasting planning is progressing on the basis that digital radio broadcasting will begin by 2001. However, significant policy and technical issues remain to be resolved before the nature of any conversion scheme is clear.

The ABA is empowered to conduct research into community attitudes on programming matters, develop program standards relating to broadcasting in Australia, assist broadcasting service providers (licensees) develop codes of practice, monitor compliance with licence conditions and investigate complaints about services.

The ABA monitors the suitability of licensees to ensure compliance with ownership and control provisions of the Act. Licenses for commercial television broadcasting services are subject to five year terms, compulsory standards on Australian content and children's television, and a condition that the licensee be a suitable person. Ownership and control limitations also apply. Under these conditions, no person may be in a position to control more than one commercial television licence in a market, or control licences with a combined audience reach of more than 75% of the Australian population. Foreign control of commercial television licences is also restricted. Commercial licences may be transferred at will, subject only to notification requirements under the ownership and control rules. Commercial radio broadcasting licences are subject to less restrictive ownership provisions.

Community radio and television are not subject to ownership limitations, and subscription radio broadcasting services and all categories of narrowcasting services are also not subject to ownership limits or suitability requirements.

In 1998–99, the ABA issued 21 new commercial radio broadcasting licences, 12 new community radio broadcasting licences, 263 temporary community radio broadcasting licences and 118 subscription television broadcasting licences. There were no commercial television licences issued.

The ABA issued 45 transmitter licences for open narrowcasting radio services using a price-based allocation system. The responsibility for issuing low power open narrowcasting services rests with the Australian Communications Authority.

The ABA also issues licences for the broadcast of special events: in 1998–99, 63 special events licences were issued.



The ABA also renewed the licences for 4 commercial television services, 12 commercial radio and 14 community radio services and 1 community television service. Under the *Radiocommunications Act 1992*, the ABA issued 19 apparatus licences for national (ABC and SBS) television and radio services.

### Radio and television services—summary of operations

Table 12.28 provides a summary of the operations of private radio and television broadcasters for 1996–97 from an ABS survey. At 30 June 1997, there were 261 private broadcasters in radio services and 48 private broadcasters in television services. Private radio broadcasters employed 5,064 persons, while private television broadcasters employed 8,873 persons. Most of the income of private broadcasters in 1996–97 was derived from the sale of airtime. Private radio broadcasters had an operating profit before tax of \$92.6m while private television broadcasters had an operating loss of \$324.0m. Regarding the latter, while free-to-air broadcasters made a pre-tax profit of \$734.3m, this was more than offset by the loss of \$1,058.4m by pay television businesses.

In addition to private broadcasters, there are two public broadcasters of radio and television services. They employed a total of 5,248 persons at the end of June 1997. Their income totalled \$775.6m in 1996–97, with expenses totalling \$772.1m. The section *Radio and television services* of *Chapter 21, Service industries* provides some more details.

**12.28 RADIO AND TELEVISION SERVICES,  
Private Broadcasters, Key  
Aggregates—1996–97**

	Unit	Radio services	Television services
Businesses at end June 1997	no.	261	48
Employment at end June 1997	no.	5 064	8 873
Sale of air time	\$m	545.8	2 365.0
All other income	\$m	76.9	985.7
Total income	\$m	622.7	3 350.7
Total expenses	\$m	530.1	3 674.6
Operating surplus/loss	\$m	92.6	–324.0
Industry gross product	\$m	342.7	776.1

Source: *Radio and Television Services, Australia, 1996–97* (8680.0).

### Training in the arts

Training in the arts in Australia covers a broad range of resources. Formal training is available through courses in Technical and Further Education institutions, universities and private institutions. A number of on-the-job training programs are also available in the arts, and many organisations offer in-house training programs for their staff. The last decade has seen the development, in some States, of multi-disciplinary tertiary institutions providing training in the arts.

A number of national specialised education institutions have been established to provide training in cultural fields. For example, the Australian Film, Television and Radio School is the national training centre for the film and broadcasting industries. The National Institute of Dramatic Art is the national training school for people who wish to enter the profession of theatre, film or television as actors, directors, designers, stage managers, theatre crafts technicians, production managers or teachers of voice and movement. The Australian Ballet School provides full-time training to the highest standard for young Australian dancers seeking a career in the classical dance profession. The Australian National Academy of Music offers master classes and short-term programs which bring distinguished national and international performers and music educators into contact with students.

CREATE Australia is the national peak advisory body on vocational education and training for the arts, media, entertainment and heritage industries. It is one of a number of Industry Training Advisory Bodies supported by industry and government. CREATE Australia's primary purpose is to promote and enhance the quality and effectiveness of vocational training and education by providing a forum through which industry can express its vocational education and training needs. CREATE Australia's industry coverage encompasses the design, film, television and radio, music, performing arts, visual arts and crafts, museums, libraries, community arts and publishing industries.

## Festivals

Festivals have become a major part of Australian life, offering a unique and valuable contribution to our cultural life. Community festivals in regional Australia are increasing both in number and popularity. They range in size from small community celebrations to major cultural events, and feature a variety of themes as diverse as flower arranging, heritage, food and wine, multicultural events, music and the arts.

There are now some 1,300 festivals Australia-wide, ranging from major international events such as the Sydney, Melbourne and Adelaide International Festivals to the more regional and community based events. These festivals provide tangible benefits by giving their communities a creative focus, generating pride in the community and providing economic benefits by attracting tourists to the area.

The last ten years or so have seen the establishment of several new, important arts festivals in Australia. Music festivals constitute the largest group of festivals, almost half of them devoted to jazz. On average, arts festivals attract 20–25% of their audience from outside their local communities. Volunteers play a major role in the organisation and operation of festivals. Even for those festivals with paid staff, the average number employed is quite small.

Table 12.29 reflects the findings of a survey of festivals conducted in 1995 by the Australia Council, and shows that the total government grant, backing small and large arts festivals in Australia, amounted to \$13.3m. Box office and subscription sales for larger arts festivals amounted to \$16.6m, while sponsorships and donations amounted to \$10.7m. Income totalled \$46.9m for larger arts festivals and \$7.6m for smaller arts festivals. The Australia Council defined large festivals as those with expenditure of \$300,000 and above. Using this measure, 31 arts festivals were included in the 'larger' group

### 12.29 OPERATING INCOME AND EXPENDITURE OF ARTS FESTIVALS—1995

	Larger arts festivals	Smaller arts festivals
	\$m	\$m
Government funding	11.5	1.8
All other income	35.4	5.8
<i>Total income</i>	46.9	7.6
Salaries and fees	17.0	3.0
All other expenditure	28.9	4.6
<i>Total expenditure</i>	45.9	7.6

Source: Australia Council, Festival Survey 1995.

Four quarterly surveys from November 1995 to September 1996, of attendance at festivals over the previous 12 months, were conducted by the ABS Population Survey Monitor. Over half of the attendances (2.4 million or 58.7%) were to main arts festivals, followed by popular music festivals (632,000 or 15.4%), art/museum exhibitions (287,000 or 7.0%) and film/video festivals (252,000 or 6.2%). Females were more likely to have attended a festival in the previous 12 months (23.0%) than males (20.8%) (table 12.30).

### 12.30 ATTENDANCES AT FESTIVALS(a)(b)—November 1995 to September 1996

	Attendances		
	Males	Females	Persons
	'000	'000	'000
Main arts festivals	1 101	1 303	2 404
Other festivals			
Art/museum exhibition	138	149	287
Popular music	335	297	632
Classical music	32	31	63
Film/video	115	136	252
Theatre	*17	50	67
Dance	53	35	88
Other performing arts	89	77	166
Craft	*17	24	42
Other	42	50	92
<i>Total</i>	840	849	1 689
Total attendances	1 941	2 152	4 094
Total number of people attending	1 335	1 518	2 853
	%	%	%
Participation rate(c)	20.8	23.0	21.9

(a) Attendances during the previous 12 months. (b) Includes all people who attended a festival, whether they went to paid or free events. (c) For each group the total number attending expressed as a percentage of the civilian population in that group.

Source: Attendance at Festivals, Australia, November 1995 to September 1996, Department of Communications and the Arts.

## Employment and participation in cultural activities

This section contains a selection of ABS statistical data ranging over the spectrum of cultural industries and activities. More comprehensive data can be found in the publications listed in the Bibliography.

### Employment in cultural occupations

According to the 1996 Census of Population and Housing, there were 156,739 people working in a cultural occupation as their main job. Females accounted for 50.1% of these people—this is much higher than their proportion (44.1%) in the employed labour force. Table 12.31 shows that the most common cultural occupations were architects, graphic designers, librarians, library assistants, and music teachers.

## Involvement in culture and leisure activities

In March 1997, an ABS survey collected information about the involvement of persons aged 15 and over in selected culture and leisure activities during the previous 12 months. Work in selected culture and leisure activities was defined to include both paid and unpaid involvement, but excluded involvement solely for the respondent's own use or that of their family.

As table 12.32 shows, during the 12 months ended March 1997, 2.2 million people (15.1% of the Australian population aged 15 and over) were involved in selected culture and leisure activities. Of these persons, 40.2% received some payment.

Many persons were involved in more than one type of activity. There were over 3.7 million involvements, the most popular activities being writing, organising fetes, teaching cultural activities, music, design and performing arts. Most of these involvements were of a short-term and part-time nature, being 13 weeks or less duration and less than ten hours a week.

**12.31 NUMBER OF PERSONS IN SELECTED CULTURAL OCCUPATIONS—1996**

Occupation group	Males	Females	Total
Media producers	2 863	1 889	4 752
Environment, parks and landcare managers	1 889	447	2 336
Architects	8 290	1 671	9 961
Librarians	1 723	7 843	9 566
Music teachers	2 121	4 992	7 113
Dance teachers	380	2 381	2 761
Painters (visual arts)	1 126	1 288	2 414
Potters and ceramic artists	898	1 257	2 155
Photographers	4 405	1 854	6 259
Fashion designers	499	2 167	2 666
Graphic designers	7 066	6 020	13 086
Interior designers	1 032	1 954	2 986
Editors	1 152	1 094	2 246
Print journalists	3 238	2 585	5 823
Authors	1 216	1 128	2 344
Instrumental musicians	4 208	1 325	5 533
Radio presenters	1 717	415	2 132
Architectural associates	4 164	939	5 103
Library technicians	561	4 940	5 501
Sound technicians	2 550	332	2 882
Library assistants	1 236	7 379	8 615
Ticket collectors and ushers	1 550	1 275	2 825

Source: 1996 Census of Population and Housing.



**12.32 PERSONS(a) INVOLVED IN CULTURE AND LEISURE ACTIVITIES—12 Months to March 1997**

	Paid involvement only	Unpaid involvement only	Paid and unpaid involvement	Total persons involved	Persons with no involvement	Total persons	Participation rate
	'000	'000	'000	'000	'000	'000	%
NSW	117.8	397.1	176.0	690.8	4 220.1	4 910.9	14.1
Vic.	82.8	323.3	118.0	524.2	3 099.8	3 624.0	14.5
Qld	54.7	251.6	103.3	409.5	2 219.8	2 629.4	15.6
SA	24.8	132.0	53.3	210.1	967.5	1 177.5	17.8
WA	33.3	125.0	55.1	213.4	1 171.7	1 385.1	15.4
Tas.	6.0	36.0	15.8	57.9	311.6	369.4	15.7
NT	1.9	10.1	5.9	17.9	84.8	102.7	17.4
ACT	10.1	32.2	18.3	60.6	174.1	234.7	25.8
<b>Aust.</b>	<b>331.4</b>	<b>1 307.2</b>	<b>545.6</b>	<b>2 184.2</b>	<b>12 249.5</b>	<b>14 433.8</b>	<b>15.1</b>

(a) Aged 15 years and over.

Source: *Work In Selected Culture/Leisure Activities, Australia, March 1997* (6281.0).**Time spent on culture and leisure activities**

The 1997 Time Use Survey showed that Australians spent on average 5 hours 16 minutes (316 minutes) or 22% of their time per day on free time activity as their main activity (table 12.33). Free time is the time left in the day after taking into consideration: time spent on sleeping, eating, personal care (necessary time); paid work and formal education (contracted time); and family and household responsibilities and unpaid voluntary work (committed time). People frequently undertake more than one activity at the same time (e.g. housework and listening to the radio). If simultaneous activities are included, Australians spent over nine hours (552 minutes) on free time activities. Time spent using audio/visual media (e.g. watching television and listening to the radio) showed the largest increase when comparing all activities (including simultaneous activities) to main activities. As a main activity, an average of 131 minutes was spent on audio/visual media. However, when simultaneous activities were included, time spent on this activity nearly doubled to 257 minutes (over four hours).

**12.33 AVERAGE TIME SPENT ON FREE TIME ACTIVITIES—1997**

	Main Activity minutes per day	All activities minutes per day
Free time activities		
Social and community interaction		
Socialising	11	12
Visiting entertainment and cultural venues	5	5
Attendance at sports events	2	2
Religious activities/ritual ceremonies	5	5
Other	22	22
<b>Total</b>	<b>45</b>	<b>47</b>
Recreation and leisure		
Sport and outdoor activity	27	28
Games/hobbies/arts/crafts	16	20
Reading	25	37
Audio/visual media	131	257
Attendance at recreational courses	1	1
Talking (including phone)	35	115
Other	34	47
<b>Total</b>	<b>271</b>	<b>505</b>
<b>Total free time activities</b>	<b>316</b>	<b>552</b>

Source: *Time Use on Cultural/Leisure Activities, 1997* (4173.0).

## Art and craft purchases

Results from surveys conducted during 1997 show that, in the three months prior to interview, 21.4% of Australian people purchased a total of 0.9 million art items and 3.9 million craft items. Of these, 0.7 million art items and 3.0 million craft items were made in Australia (table 12.34). The value of Australian made art items purchased, in the three months prior to interview, was \$138m, with a mean price of \$195; the value of craft items was \$318m, with a mean price of \$107. Extrapolated to expenditure for a full year, this would be in the order of \$550m on art items and \$1,250m on craft items.

**12.34 AUSTRALIAN MADE ART AND CRAFT PURCHASES—Purchases over 3 months, 1997(a)**

	Number(b)	Value(c)
Attendees	'000	\$m
Art items		
Paintings	334.3	84.2
Other	389.7	53.7
Total	724.0	137.9
Craft items		
Pottery/ceramics	885.5	44.4
Garments/clothing	435.3	26.5
Jewellery	383.9	58.6
Wood crafts	352.9	21.7
Other	982.2	166.4
Total	3 039.8	317.5
<b>Total art and craft items</b>	<b>3 763.8</b>	<b>455.4</b>

(a) Purchases of Australian made art and craft in a 3 month period. (b) Includes items where the price was not known. (c) Excludes items where the price was not known.

Source: *Art and craft purchases, 1997, Department of Communications and the Arts.*

## Public attitudes to the arts

The November 1997 Population Survey Monitor showed that Australians held different views about what range of activities is included in the arts: 81% included plays, ballet and opera; 80% music (concerts, orchestra and singing); 77% painting, drawing and sculpture; 62% literature, books and poetry; 54% craft, pottery and weaving; 54% photography; 35% architecture and design; and 9% sport.

Libraries were considered to be either very important or important in the community by 95% of the population. Corresponding figures for museums were 77%, performing arts venues 76%, and art galleries 72%. These levels of support were irrespective of whether or not the reporting individuals were users of the facilities.

A quarter of the population indicated that they were not adequately informed about the arts, whereas only 7% indicated that they were not adequately informed about sport. The most commonly used sources of information about the arts were newspapers, magazines or books (69%) and television (63%).

## Government funding for culture

Culture in Australia receives considerable financial support from the Commonwealth Government in the form of direct grants and through the provision of taxation benefits. This support is complemented by State/Territory and local governments.

Total outlays for cultural funding of the Commonwealth Government and State/Territory and local governments for 1997–98 were \$3,531.0m, the largest funding category being for radio and television broadcasting (\$686.4m) from the Commonwealth. Table 12.35 shows the government outlays on culture for 1997–98.

The largest funding category for State Governments was national parks and wildlife services (\$539.0m in 1997–98). For local governments, the largest cultural funding category was libraries and archives (\$422.2m).

## Business sponsorship of sport and cultural activities

In 1996–97, about 22,700 (or 3.7% of) employing businesses sponsored sport to the value of \$282m, and 2,900 (0.5% of) employing businesses sponsored art and cultural activities to the value of \$29m.

**12.35 CULTURAL FUNDING, By Level of Government—1997–98**

	Level of government			Total
	Commonwealth	State/Territory	Local	
	\$m	\$m	\$m	\$m
Cultural facilities and services				
Zoological and botanic gardens	1.7	67.5	23.1	92.3
Libraries and archives	52.4	254.1	422.2	728.6
Literature and publishing	10.2	3.8	2.9	16.8
Museums	63.4	246.0	8.1	317.5
Art galleries	18.4	75.3	28.1	121.8
Visual arts/crafts and photography	15.5	9.6	4.5	29.6
Performing arts venues and arts centres	—	104.2	56.6	160.8
Music (excluding opera)	50.8	12.3	1.8	64.9
Other performing arts	36.7	50.1	5.5	92.3
Cultural heritage	71.8	49.5	14.7	135.9
<i>Total</i>	321.0	872.2	567.4	1 760.6
Broadcasting and film				
Radio and television broadcasting	686.4	0.3	0.6	687.3
Film and video	79.2	38.8	3.2	121.2
Multimedia	6.2	1.2	0.1	7.5
<i>Total</i>	771.9	40.3	3.8	816.0
Culture n.e.c.				
Administration of culture	31.8	29.3	12.8	73.8
Community cultural activities	34.2	10.7	12.6	57.6
Public halls and civic centres	—	1.0	161.3	162.3
National parks and wildlife services	77.5	539.0	6.9	623.4
Other culture nec	16.6	10.4	10.4	37.4
<i>Total</i>	160.1	590.4	203.9	954.5
<b>Total</b>	<b>1 252.9</b>	<b>1 502.9</b>	<b>775.2</b>	<b>3 531.0</b>

Source: Cultural Funding in Australia, 1997–98 (4183.0).

## Sport and recreation

Australia is recognised internationally as a nation involved in sport. Australians in general have the health, opportunity and facilities available to participate in a wide range of sport and physical activities. This participation is encouraged in the formative school years, where physical education programs introduce students to sport and physical activity at an early age. At the local level the structure enables participants to enjoy both competitive sport and non-competitive active recreation.

Governments at all levels support the sport and recreation industry through the provision of facilities. One of the incentives for government support is the long established link between participation in physical activity and health. Active recreation is encouraged through the use of walking and cycling paths, national parks and reserves, swimming pools, beaches and similar facilities.

The Sport and Recreation Ministers Council provides the major mechanism for liaison between the Commonwealth Government and State/Territory Governments on matters concerned with sport and recreation in Australia. The Council is a forum for consultation and cooperation between the respective governments, its membership comprising ministers with prime responsibility for sport and recreation.

The Australian Sports Commission (ASC), with a budget of some \$92m per year, is responsible for the implementation of the Federal Government's sport policy, including the funding and development of sport, and works closely with State and Territory Governments and national sporting federations.

Within the ASC, the Australian Institute of Sport (AIS) program is responsible for the development of elite sport on a national basis. For the purposes of elite sport development, the Institute integrates sports science and medical services, sports management activities and funding, as well as athlete welfare and technical support services.

The AIS employs 67 coaches in 25 sports. In 1999, the Institute had 593 athletes on scholarship around Australia (336 males and 257 females), 294 of whom are based in Canberra. In 1998–99, an additional 974 athletes received support through the Direct Athlete Support initiative of the Institute. The ASC (through the Australian Coaching Council) also conducts the Graduate Diploma of Elite Sports Coaching program, which has seen a significant proportion of graduates continue to pursue a career in elite coaching. Currently 60% of them go on to coach at the national level.

The article *Sporting Australians* at the end of this chapter further discusses these themes.

## Government funding for recreation and sport

Total net (consolidated) outlays by the three levels of government (Commonwealth, State/Territories and local) on recreation in 1997–98 was \$3,348m. Most expenditure was by general government (\$2,812m, compared with \$820m by public non-financial corporations). Of the general government expenditure (before consolidation between sectors), the Commonwealth Government outlay was \$163m, State \$1,513m and local \$1,175m. Of general government expenditure, current outlays were far more significant than capital outlays (\$1,802m compared with \$1,010m).

In 1998–99, the Commonwealth Government provided \$90m for the ASC's program and administration. This figure included \$26m under

the Olympic Athlete Program, which is designed to prepare Australia's athletes for the Sydney 2000 Olympic and Paralympic Games. During 1998–99, over \$41m was allocated to 94 sports organisations to support activities such as sports management, coaching, officiating, direct athlete assistance, international competition, training camps and participation.

## Sport, recreation and gambling

There are over 11,000 businesses in the sport, recreation and gambling industries according to surveys conducted by the ABS.

There were 5,066 businesses in the sports industries at 30 June 1995. These businesses employed 58,414 persons and generated \$2,517m in income during 1994–95 (table 12.36). There were 112,877 unpaid volunteers, representing 66% of persons working in sports industries.

Other recreation services, which include amusement parks or arcades, sideshows, circuses and agricultural shows, comprised 666 businesses. These businesses employed 10,138 persons and 3,518 volunteers.

The section Sports industries in *Chapter 21, Service industries* contains some further details for these industries.

There were 1,776 businesses in the gambling services industries at 30 June 1998. These businesses employed 37,035 persons and received \$7,935m in income, the major source of income (91%) being the takings (net of payouts to players) and commissions from gambling (table 12.37). Total expenses for the gambling services industries were \$7,518m, with 35% of that amount being gambling taxes and levies.

There were 3,749 businesses in the hospitality clubs industry. These businesses employed 67,272 persons and received total income of \$6,013m.

### 12.36 SPORTS AND OTHER RECREATION SERVICES INDUSTRIES, Key Aggregates—1994–95

Industry	Number of businesses(a)	Total employment(a)	Total income
	no.	no.	\$m
Horse and dog racing	898	14 118	789.1
Sports grounds and facilities n.e.c.	1 581	21 563	796.3
Sports and services to sports n.e.c.	2 588	22 732	931.6
<i>Total sports industries</i>	<i>5 066</i>	<i>58 414</i>	<i>2 517.0</i>
Other recreation services	666	10 138	610.1

(a) At 30 June 1995.

Source: *Sports Industries, Australia, 1994–95* (8686.0); *Recreation Services, Australia, 1994–95* (8688.0).

**12.37 GAMBLING SERVICES AND HOSPITALITY CLUBS INDUSTRIES, Key Aggregates—1997–98**

Industry	Number of businesses(a)	Total employment(a)	Income net of payouts to players
	no.	no.	\$m
Lotteries	134	2 782	2 545.1
Casinos	13	20 531	2 709.7
Gambling services n.e.c.	1 629	13 722	2 680.5
<i>Total gambling services</i>	<i>1 776</i>	<i>37 035</i>	<i>7 935.3</i>
Clubs (hospitality)	3 749	67 272	6 012.5

(a) At 30 June 1998.

Source: *Gambling Industries, Australia, 1997–98* (8684.0); *Clubs, Pubs, Taverns and Bars, Australia, 1997–98* (8687.0).

Gambling services were also provided by 2,888 pubs, taverns and bars. The total net takings from gambling during 1997–98 from all businesses involved in gambling were \$11,091m, of which 57.7% (\$6,401m) were from poker/gaming machines, 12.9% from off-course TAB and 14.4% from lotteries, lotto style games, football pools, instant money and club keno. Net takings from poker/gaming machines were \$3,595m from clubs; \$2,106m from pubs, taverns and bars; and \$700m from casinos.

The section Gambling services in *Chapter 21, Service industries* contains some further details for these industries, as does the article *Gambling in Australia* at the end of that chapter.

### Participation in sport and recreation

Each year, the ABS Population Survey Monitor (PSM) collects information on the sports and physical activities in which Australians participate. Results from the four quarterly surveys of the PSM are collated to produce annual estimates,

with the most recent results published in *Participation in Sport and Physical Activities, Australia, 1997–98* (4177.0).

The survey found that 47.8% of the population (6,338,100 people) aged 18 years and over participated as players in one or more sport and physical activities during the 12 months ending June 1998 (table 12.38).

Participation rates were highest for the 18–24 year age group (70.8%), and declined steadily with age. Only 21.6% of the population aged 65 and over participated in an organised sport or physical activity.

Males had a higher participation rate than females in every age group, with the greater differences occurring in the 18–24 and 25–34 age groups. Overall, males had a participation rate of 52.6%, compared with 43.0% for females.

The most popular sport or physical activity undertaken during 1997–98 was swimming, with participation by about 1,628,800 people, or 12.3% of the population aged 18 years and over.

**12.38 PARTICIPATION IN SPORT AND PHYSICAL ACTIVITIES, By Age Group—1997–98**

Age group (years)	Males		Females		Persons	
	Number '000	Participation rate %	Number '000	Participation rate %	Number '000	Participation rate %
18–24	717.6	77.8	568.9	63.5	1 286.5	70.8
25–34	955.3	69.0	767.9	54.8	1 723.2	61.9
35–44	753.0	55.4	638.0	46.1	1 391.0	50.7
45–54	526.4	44.2	468.2	39.7	994.6	42.0
55–64	267.3	34.2	241.1	31.5	508.4	32.9
65 and over	224.0	24.6	210.3	19.1	434.3	21.6
<b>Total persons</b>	<b>3 443.7</b>	<b>52.6</b>	<b>2 894.4</b>	<b>43.0</b>	<b>6 338.1</b>	<b>47.8</b>

Source: *Participation in Sport and Physical Activities, 1997–98* (4177.0).

Results from the surveys conducted in 1996–97 of participants aged 15 years and over show that over \$2,762m was spent on organised sport and physical activities, an average expenditure of \$693 per participant. Organisation of sports is through clubs, associations and schools. The main areas of expenditure were clothing and equipment (\$814m), followed by weekly fees

(\$570m), membership (\$538m) and transport (\$527m).

The most expensive organised sport or physical activity was motor sports, which had an average expenditure of \$1,787 in 1996–97. Other expensive sports for participants were horse riding (\$1,405), waterskiing/powerboating (\$1,277) and air sports (\$1,259).

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# Sporting Australians

Australia has long been regarded as a sporting nation. Its performance compared with other countries in elite sports competitions, such as the Commonwealth and Olympic games, is testimony to the high profile given to sport in Australia's culture. In the most recent Commonwealth Games (Kuala Lumpur, 1998), Australia won the most medals. Australia also ranked among the leading nations in the 1996 Olympic Games in Atlanta (USA), where it finished with the fifth highest number of medals won. Moreover, of the top ten nations, Australia and Cuba won the most medals per head of population (2.3 medals per million people)—followed by Germany (0.8) and France (0.6).<sup>1,2</sup>

Underpinning these successes are high levels of participation among schoolchildren and adults in a wide variety of sporting and physical activities. Because of the health benefits a physically active lifestyle promotes, this is encouraged for all age groups as a matter of public policy. A national framework for participation in physical activity, known as Active Australia, was endorsed by the Commonwealth Government in 1996. Active Australia has the aim of encouraging people's active involvement in sport, community recreation, fitness, outdoor recreation and other physical activities.<sup>3</sup>

Many businesses also contribute to the promotion of sport and the support of elite

athletes—22,700 businesses sponsored sport in 1996–97, injecting \$282m into sporting events, clubs, teams and individuals.<sup>4</sup> There are economic benefits for these and other businesses and the community at large through a diverse range of commercial activities, including the manufacture and sale of clothing and equipment, attendance at sports events and associated tourism.

## Involvement in sport

In the 12-month period to the end of March 1997, the Involvement in Sport survey showed that 4.7 million people (32% of all people aged 15 years and over) were involved in playing or organising a sport on at least one occasion (table S5.1). Over 4.1 million people (29%) had played a sport, and 1.7 million (12%) (many of whom were also players) were involved as coaches, referees, administrators or in some other non-playing capacity.

The 1997–98 Survey of Sport and Physical Activities recorded even higher participation rates. This survey included social sports and physical activities, but excluded running, jogging or walking when it was not organised by a club or association. In 1997–98, 48% of persons aged 18 and over had participated, as a player, in a sport or physical activity on at least one occasion over the previous 12 months.

**S5.1 INVOLVEMENT IN SPORT—1993 and 1997**

Type of involvement	1993		1997	
	Number	Participation	Number	Participation
	'000	%	'000	%
Players	3 963.6	29.1	4 115.2	28.5
Paid	57.0	0.4	142.6	1.0
Unpaid	3 906.5	28.7	3 972.6	27.5
Non-players(a)	1 419.7	10.4	1 655.9	11.5
Paid(b)	166.1	1.2	203.9	1.4
Unpaid	1 253.6	9.2	1 452.0	10.1
Players and non-players(c)	4 504.9	33.1	4 669.8	32.4
Paid	213.3	1.6	328.5	2.3
Unpaid	4 291.6	31.6	4 341.3	30.1

(a) Includes players with non-playing involvement. (b) Refers to those who received some payment for their non-playing involvement only. (c) Persons who are involved both as players and non-players are counted only once.

Source: Unpublished data, 1993 Involvement in Sport Survey; Involvement in Sport, Australia, 1997 (6285.0).

Irrespective of the measure used, participation rates were substantially higher for men than women and for young adults than older people. Using the broader measure of participation from the 1997–98 survey, for instance, participation rates among men declined from 78% for those aged 18–24 to 25% for those aged 65 years and over, while among women they declined from 64% to 19% for the equivalent age groups.

## Recent trends

Over the short period for which comparative figures are available (1993 and 1997), levels of participation in sport as a player remained much the same (about 36% for men and 22% for women, as measured by the Involvement in Sports surveys—see table S5.2). However, some small changes are apparent. This was particularly so among women in the 25–34 and 35–44 year age ranges, where their levels of participation in sport fell by about two percentage points. Against this trend, small increases appear to have occurred in participation rates among older men and women.

A notable change, among players in particular, has been the increase in numbers of people being paid for their involvement in sport. In 1997, 142,600 people were paid for playing a sport, compared with 57,000 in 1993. The number of paid players as a proportion of all players (3.5% in 1997) has nonetheless remained quite small. The number of paid non-players also increased, but to

a lesser extent—an increase of 37,800 to a total of 203,900 people in 1997.

## Popular sports and physical activities

The level of involvement in particular sports varies greatly by the age of the players, and although most sports are played by both men and women, some sports, such as cricket and netball, are much more likely to be dominated by one gender group. A feature of children's involvement in sport, apart from having much greater participation than adults, is that they are more likely to play a team sport requiring larger numbers of players. The opportunity that team sports provide for teaching social skills and the convenience of arranging group activities for children, who have comparatively large blocks of free time, are likely to be among the main reasons for the difference.

## Sports played by children

In 1996–97, 61% of children aged 5–14 (1.6 million altogether) had played a sport organised by a club, association or school in the previous 12 months. As with adults, boys (65%) were more likely to have participated than girls (57%). For the large majority of children who had played an organised sport (87%), it had been organised by a club. However, 34% of children involved in an organised sport had participated in a school-organised sport out of school hours.

**S5.2 PROPORTIONS OF MEN AND WOMEN PLAYING SPORT—1993 and 1997**

Type of involvement	1993		1997	
	Men	Women	Men	Women
Age group (years)	%	%	%	%
15–24	55.5	39.4	57.9	40.0
25–34	42.5	28.1	42.7	25.7
35–44	32.3	20.7	32.8	17.6
45–54	25.0	14.8	25.2	14.3
55–64	21.1	14.5	23.2	14.8
65 and over	20.3	12.2	22.2	12.9
Total	35.3	23.1	35.7	21.5
	'000	'000	'000	'000
Total playing sport	2 382.1	1 581.5	2 536.4	1 578.8

Source: Unpublished data, 1993 *Involvement in Sport Survey*; *Involvement in Sport, Australia, 1997* (6285.0).

Taking boys and girls together, the two most popular organised sports among children in 1996–97 were swimming and basketball (331,900 and 235,500 participants, respectively) with netball (233,700 participants—dominated by girls) and outdoor soccer (228,800 participants—dominated by boys) following closely behind (table S5.3). The most popular organised sport among boys in 1996–97, with 208,600 participants, was outdoor soccer. Other football codes, including Australian Rules and to a lesser extent Rugby League (183,700 and 84,400 participants), were also popular. Cricket (outdoor—165,200) was the third most popular organised sport played by boys. Dancing and gymnastics ranked among the six most popular organised sports for girls, with 133,500 and 57,500 participants, respectively.

### S5.3 MAIN ORGANISED SPORTS PLAYED BY CHILDREN(a)—1996–97

Sport/Activity	Players '000
<b>BOYS</b>	
Soccer (outdoor)	208.6
Australian Rules football	183.7
Cricket (outdoor)	165.2
Swimming	154.1
Basketball	152.9
Tennis	104.5
<b>GIRLS</b>	
Netball	220.7
Swimming	177.7
Dancing	133.5
Tennis	99.3
Basketball	82.6
Gymnastics	57.5

(a) Children aged 5–14 years.

Source: *Participation in Sport and Physical Activities, Australia, 1996–97* (4177.0).

## Sporting activities among adults

As with children, swimming was the most popular sporting activity among adults (those aged 18 years and over). In 1997–98, 1.6 million adults (12%) had been for a swim on at least one occasion during the year (84% of whom had been for a swim on more than 6 occasions) (table S5.4). Swimming ranked among the most popular sports for all age groups, although aerobics/fitness was equally popular with those aged 18–34 (both 18%), and golf ranked as the most commonly played sport among adults aged 45 years and over with 8%, followed by swimming (7%).

### S5.4 ADULT PARTICIPATION IN MAIN SPORTS AND PHYSICAL ACTIVITIES(a)—1997–98

Sport/Activity	Players '000
<b>MEN</b>	
Golf	873.7
Swimming	732.8
Aerobics/fitness	503.0
Fishing	477.2
Tennis	463.6
Cycling	407.3
Billiards/pool/snooker	242.6
Cricket (outdoor)	229.4
Surf sports	225.0
Tenpin bowling	220.7
<b>WOMEN</b>	
Swimming	896.0
Aerobics/fitness	876.2
Tennis	474.2
Netball	285.8
Golf	242.5
Cycling	218.6
Tenpin bowling	217.3
Fishing	164.3
Horse riding	154.2
Billiards/pool/snooker	130.5

(a) Refers to persons aged 18 years and over.

Source: *Participation in Sport and Physical Activities, Australia, 1997–98* (4177.0).

Overall, with 1.4 million participants, aerobics/fitness was the second most popular sporting or physical activity with adults in 1997–98. This was followed by golf (1.1 million participants) and tennis (937,800 participants).

For men, the most popular sports were golf (873,700 participants), swimming (732,800) and aerobics/fitness (503,000). While no single code of football was among the top ten sports and physical activities undertaken by men, a total of 660,900 men played some form of football. Outdoor soccer was the most popular code, with 199,700 participants, followed by Australian Rules with 152,900. Touch football (147,100) was more popular than Rugby League (86,600) and Rugby Union (41,400).

For women, swimming and aerobics/fitness were by far the most popular physical activities, with 896,000 and 876,200 participants respectively. Other popular sports for women were tennis (474,200 participants) and netball (285,800).

## Masters' sports

Older people who have enjoyed competitive sport at younger ages are often keen to maintain or renew their active involvement by competing with their peers. The Australian Masters' Games is a multi-sports festival for mature-aged people conducted biennially in various locations throughout Australia. Ownership of the Games is held in trust by the Confederation of Australian Sport (CAS). Competition in a variety of sports (51 in Melbourne in 1995 and 39 in Canberra in 1997) is usually offered in five-year age spans, starting at 30 and continuing into the 90s. While the number of participants in Masters' Games increased substantially over the decade to 1997, average ages remained fairly constant, indicating an increase in participants over all ages (table S5.5).

The success of the Masters' Games reflects the wider participation in Masters sports by mature-aged people. Growth in the number of sports providing participation was most rapid in the 1980s, when 44 more sports were included on top of the 17 that had started between 1950 and 1979. Reports from many sporting bodies to the CAS indicate that Masters is the fastest growing area in their sport, in terms of numbers of participants.<sup>5</sup>

## Time and other costs

Sport and exercise take up time and often cost money. Results from the 1997 ABS Time Use Survey indicate that an average of 21 minutes each day is spent on sport or physical exercise (excluding fishing) by people aged 15 years and over, if all people in this age group are included. If limited to those who participated, however, considerably more time was allocated to these activities—on average, 1hr:14mins each day. According to the 1996–97 Survey of Participation

in Sport and Physical Activities, an average of \$693 was spent over the year by each participant in organised sport on membership and weekly fees, clothing and equipment, and other related expenses.

## Employment status of players

While unemployed people may have more time for recreational activities such as sport, it is also likely that they are less able to afford the expense of organised sporting activities. Employed people were more likely to participate in sport (60% of men and 54% of women) than those unemployed (50% and 46% respectively) (table S5.6).

Men and women who were not in the labour force were the least likely to play sport, with only 31% and 30% participating, respectively. However, many in this group would have been older retired people, who are less likely to play sport than younger people.

## State and Territory differences

Differences in levels of participation in sport and physical activities in different parts of the country are in part affected by the age profiles of those populations, but other factors such as climate and life-style preferences of individuals may also be important. These differences can be observed between the States and Territories. In 1997–98, residents of the Australian Capital Territory (aged 18 and over) recorded the highest participation rate (64%). New South Wales and South Australia, on the other hand, recorded the lowest participation rates (both 45%). The biggest difference between the participation of men and women was in the Australian Capital Territory (72% and 56% respectively) (table S5.7).

**S5.5 AUSTRALIAN MASTERS' GAMES, Number of Players and Average Ages—1987 to 1997**

Year held	Venue	Players	Men	Women
		no.	years	years
1987	Tasmania	3 695	50	49
1989	Adelaide	7 415	46	45
1991	Brisbane	5 957	..	..
1993	Perth	5 759	46	44
1995	Melbourne	10 479	47	44
1997	Canberra	8 811	47	43

Source: Confederation of Australian Sport 1987–97, Australian Masters' Games Final Reports.

**S5.6 PARTICIPATION IN SPORT, By Employment Status(a)—1997–98**

	Men	Women
Employment status	%	%
Employed	60.4	53.6
Full-time	60.4	53.9
Part-time	60.5	53.2
Unemployed	49.6	45.9
Not in the labour force	30.8	29.6
<b>Total</b>	<b>52.6</b>	<b>43.0</b>

(a) Persons aged 18 years and over.

Source: *Participation in Sport and Physical Activities, Australia, 1997–98* (4177.0).**S5.7 PARTICIPATION IN SPORT, By State/Territory(a)—1997–98**

	Men	Women	Persons
State/Territory	%	%	%
New South Wales	50.4	39.3	44.7
Victoria	50.9	44.3	47.5
Queensland	56.0	45.6	50.8
South Australia	50.0	40.4	45.1
Western Australia	55.7	48.1	51.9
Tasmania	57.2	43.9	50.4
Northern Territory(b)	56.5	45.7	51.0
Australian Capital Territory	71.5	55.7	63.6

(a) Persons aged 18 years and over. (b) Figures for the Northern Territory refer to mainly urban areas only.

Source: *Participation in Sport and Physical Activities, Australia, 1997–98* (4177.0).**Reasons for discontinuing sport**

People may discontinue one sport and take up another, or they may give sport up altogether. Also, with increasing age, fewer people engage in physical activities. The most common reason for giving up a sporting activity, among the 1.8 million people who reported having discontinued an organised activity during the two years prior to 1996–97, was lack of time. Men (31%) were more likely to give lack of time as a reason than women (24%) (table S5.8). With 228,800 people saying that they had a sports-related injury in 1995<sup>6</sup>, it is not surprising that the presence of injury or health problems was also commonly stated as the reason for discontinuing a sporting activity (21%).

**S5.8 MAIN REASON FOR DISCONTINUING ORGANISED SPORT(a)(b)—1996–97**

Reason	Men	Women
	%	%
No time/too busy	30.9	23.7
Injury/health problems	20.7	20.8
Moved away from club	13.9	8.6
Lost interest	10.3	10.2
Too expensive	6.8	10.7
Change in employment	3.8	2.7
Child care problems	0.5	3.5
Other/don't know	13.2	19.7
	'000	'000
<b>Total discontinuing sport</b>	<b>909.0</b>	<b>903.7</b>

(a) Persons aged 18 years and over. (b) During the previous two years.

Source: *Participation in Sport and Physical Activities, Australia, 1996–97* (4177.0).

Although women were more likely than men to discontinue an organised sport or physical activity because of child care problems, only a small proportion (3.5%, or 36,600 women) gave this as a reason.

**Non-player involvement in sport**

In the 12 months to March 1997, 13% of males and 10% of females aged 15 years and over had been involved in sport as non-players. The most common type of non-playing involvement was as a coach, instructor or teacher, with 628,300 people (4%) acting in this capacity (table S5.9). Almost as many (605,800, or 4%) were members of a committee.

**S5.9 NON-PLAYING INVOLVEMENT IN SPORT(a)—1997**

	Number	Participation rate
Type of involvement	'000	%
Coach/instructor/teacher	628.3	4.4
Referee/umpire	456.8	3.2
Committee member	605.8	4.2
Administrator	266.5	1.8
Other involvement	569.9	3.9
<b>Total non-playing(b)</b>	<b>1 655.9</b>	<b>11.5</b>

(a) Persons aged 15 years and over. (b) Figures may not add to total as some people may have more than one type of non-playing involvement.

Source: *Involvement in Sport, Australia, 1997* (6285.0).

Only a small minority (10%) were paid for their non-playing involvement, mostly for coaching (41%) or refereeing (31%). Non-playing involvement in sport was most common for persons aged 35–44 years, with a participation rate of 18%. This group includes many parents who are likely to be involved in supporting their children's sporting interests (see *Australian Social Trends 1997*, 'Voluntary work', pp. 109–112).

## Attendance at sporting events

Australians enjoy watching sporting events. According to a survey conducted by the ABS in November 1997<sup>7</sup>, sporting programmes were the most commonly watched on television after news and current affairs programmes, and were viewed regularly by over half of all Australians aged over 18 (55%). As well as watching sporting events on television, attending sports events (such as club matches and international competitions) is also a popular pastime.

During the 12 months ended March 1995, 6.2 million people, (44% of all people aged 15 and over), had attended a sporting event (excluding junior and school sport). Men (52%) were more likely to have attended than women (37%). For both men and women, attendance rates were highest for the 15–24 age group (63% and 55% respectively) and steadily declined with age. Among men aged 65 and over, the attendance rate was 28%, while for women in this age group it was 15%.

The most popular spectator sport was Australian Rules football, almost 1.9 million people having attended this sport on at least one occasion during the year (table S5.10). Horse racing (1.7 million), Rugby League (1.5 million) and cricket (1.2 million) were also among the most popular spectator sports.

### S5.10 ATTENDANCE AT SELECTED SPORTING EVENTS—1995

Sporting event	Persons	Attendance rate
	'000	%
Australian Rules football	1 874	13.3
Horse racing	1 701	12.1
Rugby League	1 462	10.4
Cricket	1 166	8.3
Basketball	692	4.9
Harness racing	600	4.3
Soccer	559	4.0
Motor sports	452	3.2
Tennis	432	3.1
Rugby Union	358	2.5
Netball	312	2.2

Source: *Sports Attendance, Australia, 1995* (4174.0).

## Sydney 2000 Olympic Games

The largest sporting event in the world, involving both the largest numbers of participants and spectators, is the Olympic Games conducted every four years, almost continuously, since 1896. At the 1996 Games (in Atlanta, USA) 8.4 million tickets were sold to spectators<sup>8</sup> and 10,744 athletes participated.<sup>9</sup> Billions of people all over the world viewed the games live through satellite broadcasts to their television sets.

The Sydney 2000 Olympic Games will be held between the 15th of September and 1st of October 2000. Up to 10,200 athletes from 200 countries are expected to take part in 28 sports, and around 5.5 million tickets are expected to be sold.<sup>10</sup> The Australian team is expected to have nearly 700 athletes, and over one million Australians are expected to attend the games.

The Paralympics will be held between 18th and 29th of October 2000 and will involve more than 4,000 athletes from 125 countries.

## Endnotes

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## Introduction

Australia's economic development has been one of contrast and change. In the early years of settlement, between 1788 and 1820, there was little scope for industrial or commercial enterprises. The government, as both main producer and main consumer, established workshops to produce the basic necessities of life—flour, salt, bread, candles, leather and leather articles, blacksmith's products, tools and domestic items.

Between 1820 and 1850, the pastoral industry led Australia's economic development, and by 1850 it was supplying well over 50% of the British market for imported wool. The growth in the wool industry brought great advances in the rest of the economy, with local manufacturing industries being established in response to new market opportunities. Gold surpassed wool as Australia's major export earner throughout the 1850s and 1860s, resulting in a rapid expansion of banking and commerce. Increased public works activity during the 1870s played an important role in encouraging expansion in manufacturing.

From 1901 to 1930 manufacturing expanded further, with impetus from Federation and the elimination of customs barriers between States, and from the First World War. With the onset of the Second World War, the Australian manufacturing sector was sufficiently developed and diversified to respond to the demand for war materials and equipment. Key industries expanded and new ones developed rapidly to produce munitions, ships, aircraft, new kinds of equipment and machinery, chemicals, textiles and so on. After the war, all sectors of the economy experienced growth. The onset of the oil price rises in 1973–74 led the world into recession, and 'stagflation' (inflation coupled with slower growth in Gross Domestic Product (GDP)) affected all sectors of the economy. The modest employment growth between 1968 and 1979 was dominated by the service industries.

The 1980s and 1990s have seen a decline in the relative contribution to GDP from goods-producing industries and a rise in the contribution from service industries. The falling contribution from goods-producing industries is largely the result of a decline in Manufacturing's share of GDP. The Mining, Manufacturing and Electricity, gas and water supply industries have

all experienced declining employment, along with outsourcing of some activities, particularly support services.

This chapter presents an overview of the current structure and performance of the main industrial components of the Australian economy, and their relative contributions to overall economic activity, particularly in terms of production and employment. Statistics are presented at a broad industry level, generally equating to the Division level of the Australian and New Zealand Standard Industrial Classification (ANZSIC).

While the statistics presented in this chapter provide the basis for comparisons across industries, care should be taken when making comparisons with data in the industry-specific chapters. Differences in the frequency, scope, statistical units and methodologies of the various ABS collections used to compile the statistics will affect the degree to which comparisons can be made.

Table 13.1 shows each industry's contribution to production and employment in the economy. Tables 13.2 to 13.5 provide more detailed indicators of economic activity by industry over the short and longer term. Each of these tables includes data covering all businesses in the economy. Table 13.6 provides the latest in a selected series of performance indicators for each industry, but its scope excludes non-employed businesses and entities in the general government sector.

The chapter concludes with a brief introduction to the chapters on economic issues—on Australia's industries, on certain cross-cutting issues, and on the macro-economic perspectives.

## Output and employment by industry

Two measures of the changing importance of an industry are its contributions to GDP at basic prices and to employment; these are illustrated in table 13.1.

The table shows that, in 1997–98, Manufacturing remained the most significant industry in terms of its contribution to GDP. Property and business services was the only other industry to contribute over 10% of GDP and over 10% of total employment. Manufacturing, with 13% of total employment, was the second largest employing industry behind Retail trade (15%).

**13.1 GROSS PRODUCT(a) AND EMPLOYMENT(b), By Industry—1997–98**

Industry		Gross product		Employment(b)	
		Contribution to GDP(P)(c)		Contribution to total employment	
	\$m	(d)%	'000		%
Agriculture, forestry and fishing	17 525	3.4	417		4.9
Mining	25 092	4.8	87		1.0
Manufacturing	69 004	13.2	1 095		12.8
Electricity, gas and water supply	14 272	2.7	66		0.8
Construction	29 973	5.7	619		7.2
Wholesale trade	29 432	5.6	528		6.2
Retail trade	30 314	5.8	1 243		14.5
Accommodation, cafes and restaurants	11 954	2.3	423		4.9
Transport and storage	33 081	6.3	396		4.6
Communication services	16 182	3.1	146		1.7
Finance and insurance	33 644	6.4	325		3.8
Property and business services	56 198	10.8	921		10.8
Government administration and defence	23 828	4.6	(e)329		3.9
Education	25 578	4.9	608		7.1
Health and community services	32 514	6.2	820		9.6
Cultural and recreational services	10 572	2.0	205		2.4
Personal and other services	12 116	2.3	328		3.8
Ownership of dwellings	50 572	9.7	n.a.		n.a.
<b>Total</b>	<b>521 851</b>	<b>100.0</b>	<b>8 555</b>		<b>100.0</b>

(a) Gross Domestic Product at basic prices. (b) Estimates relate to May 1998 and are entirely sourced from the Labour Force Survey. (c) Production-based measure of GDP. (d) Percentage contributions do not sum to 100% due to rounding. (e) Defence forces are not included in the estimates of employment.

Source: Unpublished data, Australian System of National Accounts, 1997–98; Australian System of National Accounts (5204.0); Labour Force, Australia (6203.0).

## Profits, wages and output

Table 13.2 presents broadly the profits of businesses (referred to as gross operating surplus and gross mixed income) and the wages income of employees (referred to as compensation of employees) for 1997–98, the change over 1996–97, and the average annual rate of growth over the years from 1989–90.

The table shows that profits rose in 1997–98 in all industries, with the average for all industries up 8%. In comparison, the average annual increase in profits over the years from 1989–90 to 1997–98 was 5%.

The strongest increases in profits in 1997–98 were recorded by Communication services (25%), Construction (16%), Finance and insurance (15%), Personal and other services (14%) and Mining (12%). The Wholesale trade industry was the only one to record a fall in profits in 1997–98, but in the period from 1989–90 to 1997–98 profits grew by an annual average of 2.3%. Over this period, Finance and insurance showed an average annual increase in profits of 13%, profits for

Personal and other services increased on average by 13%, and profits for Communication services increased on average by 11%.

The table also shows the growth in wages. The Cultural and recreational services industry showed the largest increase (11%) in wages in 1997–98, with an average annual increase of 9% in the years from 1989–90 to 1997–98. Employment in this industry increased by 2% in 1997–98 (compared with an all industry average increase of 1%), and by an annual average of 4% for the years from 1989–90 to 1997–98.

Similarly, wages in Accommodation, cafes and restaurants rose by 10% in 1997–98, the same as the average annual increase over the years from 1989–90 to 1997–98. This industry also recorded 4% growth in employment over the period from 1989–90 to 1997–98. Wages in the Mining industry increased by 9% in 1997–98, and averaged a 4% annual increase.

For the Electricity, gas and water supply industry wages fell by 3% in 1997–98, consistent with average falls of 2% annually over the years from 1989–90 to 1997–98. Employment in this industry fell by 4% in 1997–98, and by an average of 5% annually over the years from 1989–90 to 1997–98.

## 13.2 PROFITS AND WAGES, By Industry

Industry	Profits (GOS(a) and GMI(b))			Wages (compensation of employees(c))		
	1997–98	Change from 1996–97	Average annual rate of growth 1989–90 to 1997–98	1997–98	Change from 1996–97	Average annual rate of growth 1989–90 to 1997–98
	\$m	%	%	\$m	%	%
Agriculture, forestry and fishing	13 016	3.2	2.4	3 940	3.5	2.4
Mining	18 039	12.0	5.9	6 672	8.6	3.5
Manufacturing	27 199	9.8	4.2	38 510	3.7	2.9
Electricity, gas and water supply	10 379	4.6	4.4	3 688	–3.2	–2.0
Construction	15 078	15.6	4.2	13 935	8.3	1.6
Wholesale trade	8 736	–4.6	2.3	18 881	6.3	3.0
Retail trade	8 562	3.7	2.6	20 207	3.2	5.0
Accommodation, cafes and restaurants	3 720	9.7	5.1	7 843	9.5	6.9
Transport and storage	16 644	2.7	7.1	15 592	0.5	3.6
Communication services	8 464	24.7	10.6	7 083	–0.1	4.5
Finance and insurance	12 218	14.6	12.6	16 583	5.4	4.1
Property and business services	20 984	8.2	3.5	32 588	0.6	7.0
Government administration and defence	3 005	4.3	4.7	20 837	4.1	5.9
Education	2 672	5.6	6.6	22 453	6.1	4.8
Health and community services	5 108	5.0	6.5	26 860	7.3	5.4
Cultural and recreational services	3 985	14.3	4.9	5 645	11.3	9.0
Personal and other services	2 992	8.4	12.7	8 767	3.5	5.0
Ownership of dwellings	47 294	5.4	5.4	n.a.	n.a.	n.a.
<b>All industries</b>	<b>228 095</b>	<b>7.7</b>	<b>4.8</b>	<b>270 084</b>	<b>4.4</b>	<b>4.3</b>

(a) Gross Operating Surplus in current prices. (b) Gross Mixed Income in current prices. (c) This was formerly known as Wages, Salaries and Supplements.

Source: Australian System of National Accounts, 1997–98 (5204.0).

Table 13.3 shows the growth in each industry's gross value added in terms of chain volume measures, in 1997–98 and over the longer term as an annual average over the years from 1989–90 to 1997–98. While current price estimates reflect both price and volume changes, chain volume estimates reflect only volume changes, as the direct effect of price changes has been eliminated from the estimates. For more information on chain volume measures see the section *Chain volume or 'real' GDP* in Chapter 29, *National accounts*.

The two industries whose gross value added grew the most in 1997–98 were Construction (12%) and Property and business services (10%). The Construction industry also showed a considerable increase in profits (16%) in the same year, as shown in table 13.2.

The largest annual average increase (9%) in gross value added over the years from 1989–90 to 1997–98 was in the Communication services industry. In 1997–98 gross value added in this industry grew by 8%.

**13.3 INDUSTRY GROSS VALUE ADDED(a), Chain Volume Measures(b), By Industry**

Industry	1997-98	Change from 1996-97	Average annual rate of growth 1989-90 to 1997-98
	\$m	%	%
Agriculture, forestry and fishing	16 668	-1.4	3.5
Mining	23 769	5.3	4.8
Manufacturing	65 878	1.5	1.2
Electricity, gas and water supply	14 292	3.0	2.1
Construction	30 003	12.0	2.6
Wholesale trade	30 727	7.4	3.4
Retail trade	30 792	5.1	2.7
Accommodation, cafes and restaurants	11 321	3.7	2.4
Transport and storage	33 464	3.2	3.3
Communication services	15 665	8.2	9.2
Finance and insurance	32 398	4.7	3.1
Property and business services	59 662	10.0	4.6
Government administration and defence	23 185	1.5	2.4
Education	23 788	-1.4	1.8
Health and community services	31 714	4.4	3.0
Cultural and recreational services	9 904	5.0	3.3
Personal and other services	12 122	4.9	2.8
Ownership of dwellings	49 169	2.6	3.0
Taxes less subsidies on products	42 734	6.8	4.6
Statistical discrepancy (production-based)	-333	..	..
<b>All industries (GDP)</b>	<b>556 923</b>	<b>4.6</b>	<b>3.1</b>

(a) At basic prices. (b) Reference year for chain volume measures is 1996-97.

Source: Australian System of National Accounts, 1997-98 (5204.0).

## Changes in hours worked by industry

Table 13.4 shows that, in the goods-producing industries as a group, hours worked have been generally declining over the period from 1989-90 to 1997-98. The slight rise in hours worked in the Agriculture, forestry and fishing and Construction industries over this period are overshadowed by the declines in the other goods-producing industries, in particular the 6% average annual fall in hours worked in the Electricity, gas and water supply industry. These reductions in hours worked should be considered in the context of the corresponding increases in labour productivity achieved by some industries, most notably Electricity, gas and water supply. This issue is discussed in greater depth in the next section, *Changes in labour productivity*.

Hours worked also fell in some service industries, for example in Communication services, which experienced a fall (of 11%) in 1997-98, and growth on average by just 1% over the period

from 1989-90 to 1997-98. Government administration and defence also experienced a fall in hours worked (of 8%) in 1997-98. Hours worked in this industry declined at an average annual rate of 0.4% over the period from 1989-90 to 1997-98.

It is interesting to compare the growth in hours worked with the growth in wages over the same period. In the goods-producing industries, hours worked generally fell over the period from 1989-90 to 1997-98. However, wages for these industries grew at an annual rate of 3%, compared with the average for all industries of 4%.

In evaluating changes in hours worked, it is important to recognise that industry restructuring, outsourcing of some functions and contract employment have impacted more substantially on some industries than others. More detail on employment changes over time is included in *Chapter 6, Labour*.

## 13.4 INDEXES OF HOURS WORKED(a), By Industry

Industry	1997-98	Change from 1996-97	Average annual rate of growth 1989-90 to 1997-98
	Index number	%	%
Agriculture, forestry and fishing	103.5	3.5	0.3
Mining	98.2	-1.8	-1.8
Manufacturing	98.5	-1.5	-1.7
Electricity, gas and water supply	98.3	-1.7	-5.7
Construction	103.5	3.5	0.3
Wholesale trade	101.6	1.6	-0.2
Retail trade	99.9	-0.1	0.8
Accommodation, cafes and restaurants	100.5	0.5	3.2
Transport and storage	100.1	0.1	0.8
Communication services	89.0	-11.0	1.2
Finance and insurance	98.4	-1.6	-1.6
Property and business services	108.5	8.5	5.3
Government administration and defence	92.5	-7.5	-0.4
Education	99.0	-1.0	1.5
Health and community services	103.3	3.3	2.5
Cultural and recreational services	103.1	3.1	2.9
Personal and other services	107.2	7.2	2.9
<b>All industries</b>	<b>101.1</b>	<b>1.1</b>	<b>0.9</b>

(a) Reference year 1996-97 = 100.

Source: Australian System of National Accounts, 1997-98 (5204.0).

## Changes in labour productivity

Changes in the number of hours worked provide another indicator of the level of economic activity of an industry. A developing or buoyant industry will generally show an increase in the number of hours worked over time. However, rapid growth in labour productivity within an industry may be associated with a decline in hours worked. A general indication of such effects is provided in table 13.5, which shows the changes in labour productivity (measured here as chain volume gross value added per hour worked) experienced by each industry between 1996-97 and 1997-98, as well as the average rate of change over the period from 1989-90 to 1997-98.

For some industries, principally the public sector dominated ones, the growth in the volume of output is derived using indicators of labour input because of a lack of suitable output indicators. Therefore, for these industries there are no meaningful measures of labour productivity growth. The remaining industries are known collectively as the market sector, and indexes of their labour productivity are shown in table 13.5.

The average increase in labour productivity across all industries in the market sector between 1996-97 and 1997-98 was 4.5%; over the period from 1989-90 to 1997-98 the average annual increase was 3%.

Gross value added per hour worked in the Communication services industry increased in 1997-98 by 22% and achieved an average annual increase in labour productivity of 5% over the period from 1989-90 to 1997-98. Similarly, labour productivity in the Electricity, gas and water supply industry increased on average by 8% per year over the period from 1989-90 to 1997-98 (including 5% in 1997-98); this industry's average increase in gross value added over the same period was 2%, and hours worked decreased by an annual average of 6% over the period. The Mining industry experienced growth on average of 6% per year over the period from 1989-90 to 1997-98 (including 7% in 1997-98); this industry's average increase in gross value added over the same period was 5%, and hours worked decreased by an annual average of 2% over the period.

As indicated in the table, Accommodation, cafes and restaurants experienced an average fall of 1% in labour productivity over the period from 1989–90 to 1997–98. Labour productivity declined for this industry because the average growth in hours worked (3%) exceeded the average growth in the chain volume estimates of gross value added (2%). Similarly, labour productivity in the Cultural and recreational services industry fell on average by 1% over the period from 1989–90 to 1997–98 because hours worked grew faster than gross value added.

These measures of labour productivity should be treated with care. Changes in the composition of labour, which are not captured in the hours worked measure, can affect output, which can also be affected by changes in inputs other than labour (e.g. capital). Finally, the extent to which the capacity of inputs is used can affect output per hour worked; for example, there will be an apparent increase in productivity when an input that was previously not fully used becomes fully used. The average increase in labour productivity across all industries between 1996–97 and 1997–98 was 3.5%; over the period from 1989–90 to 1997–98 the average annual increase was 2%.

## Industry performance

The relative performance of industries, like the relative performance of businesses, can be analysed using a combination of quantitative estimates (of the kind shown in earlier tables) and performance ratios. Various ratios commonly used in financial analysis are included in table 13.6. These show, for example, that in 1997–98:

- industries which converted the highest proportion of their sales into profit (as represented by the profit margin) were Finance and insurance, Communication services, and Electricity, gas and water supply;
- businesses in Health and community services, Retail trade, and Communication services reported, on average, the highest return on assets;
- industries with the greatest ability to cover long term debt with total assets (represented by the long-term debt to equity ratio) were Agriculture, forestry and fishing, Personal and other services, and Property and business services; and
- the greatest ability to service debt charges from profits (as represented by the interest coverage ratio) was recorded for the Health and community services and Personal and other services industries.

### 13.5 INDEXES OF GROSS VALUE ADDED(a) PER HOUR WORKED, By Industry(a)(b)

Industry	1997–98 Index number	Change from 1996–97 %	Average annual rate of growth 1989–90 to 1997–98 %
Agriculture, forestry and fishing	95.3	–4.7	1.3
Mining	107.2	7.2	5.8
Manufacturing	103.0	3.0	2.8
Electricity, gas and water supply	104.8	4.8	8.2
Construction	108.3	8.3	2.9
Wholesale trade	105.7	5.7	3.8
Retail trade	105.2	5.2	2.5
Accommodation, cafes and restaurants	103.2	3.2	–0.9
Transport and storage	103.2	3.2	2.2
Communication services	121.6	21.6	5.3
Finance and insurance	106.4	6.4	3.8
Cultural and recreational services	101.8	1.8	–1.2
<b>Market sector</b>	<b>104.5</b>	<b>4.5</b>	<b>2.9</b>

(a) Reference year for chain volume measures is 1996–97. (b) Estimates presented in this table relate only to industries in the market sector.

Source: Australian System of National Accounts, 1997–98 (5204.0).



**13.6 INDUSTRY PERFORMANCE RATIOS(a)—1997–98**

Industry	Profit margin	Return on assets	Long-term debt to equity	Interest coverage	Investment rate
	%	%	times	times	%
Agriculture, forestry and fishing	13.4	2.9	0.1	3.5	47.8
Mining	13.7	6.7	1.0	4.1	n.a.
Manufacturing	6.0	7.0	0.6	5.0	19.9
Electricity, gas and water supply	14.8	4.2	0.7	1.7	n.a.
Construction	4.1	8.6	0.8	4.6	18.2
Wholesale trade	2.9	6.6	0.5	4.5	11.5
Retail trade	3.4	12.1	0.9	3.8	10.7
Accommodation, cafes and restaurants	7.2	7.3	0.7	3.5	24.0
Transport and storage	8.2	6.9	1.0	3.5	23.1
Communication services	15.9	10.6	0.8	5.3	28.7
Finance and insurance	27.8	3.0	..	1.9	..
Property and business services	11.6	5.8	0.5	3.8	15.7
Education	5.8	5.6	0.3	5.4	16.7
Health and community services	13.2	13.9	0.7	8.5	11.8
Cultural and recreational services	11.2	6.4	0.5	5.3	63.2
Personal and other services	10.8	8.2	0.2	6.8	25.4
<b>All industries(b)</b>	<b>8.9</b>	<b>4.7</b>	<b>0.6</b>	<b>2.7</b>	<b>25.2</b>

(a) The underlying data include private employing and public trading businesses, but exclude non-employing businesses and entities in the general government sector. (b) Long-term debt to equity and Investment rate for All industries exclude Mining, Electricity, gas and water supply and Finance and insurance businesses. Interest coverage for All industries also excludes Mining and Electricity, gas and water supply.

Source: *Business Operations and Industry Performance, Preliminary (8142.0)*.

The derivations of the performance ratios shown in table 13.6 are as follows:

- *Profit margin* is operating profit before tax as a percentage of sales of goods and services plus interest income plus other operating income;
- *Return on assets* is operating profit before tax as a percentage of total assets;
- *Long-term debt to equity* is the number of times that non-current liabilities exceed net worth;
- *Interest coverage* is the number of times that businesses can meet their interest expenses from their earnings before interest and tax; and
- *Investment rate* is the proportion of industry gross product used for capital investment.

## Number of businesses and employment by size of business

This section outlines the growth in the number of Australian businesses, and in their employment, by employment size group, in 1997–98 and over the period from 1986–87 to 1997–98. The analysis and tables cover businesses other than government enterprises and businesses classified to the Agriculture, forestry and fishing industries.

Table 13.7 shows details of the change in the number of businesses by employment size group, while table 13.8 shows the change in employment across the different employment size categories.

The tables show that in 1997–98 there were almost 980,000 non-agricultural private sector businesses operating in Australia, employing around 6.4 million people. Over the period from 1986–87 to 1997–98, the total number of businesses increased by an average of 3.4% per year, while the total number of persons employed grew at 2.3% per year. By comparison, in 1997–98 the number of businesses grew by 5%, and the number of persons employed increased by 2.2%.

The average annual rate of growth in numbers of businesses over the period from 1986–87 to 1997–98 was fairly similar across the different size categories, the notable exception being businesses with 1–9 employees, which recorded an average growth in numbers of 4.5% per year. Other categories ranged from 1.7% to 2.8% per year. Changes from 1996–97 were more variable. There was strong growth in the number of businesses with 10–19 employees and in non-employing businesses (6% and 8% respectively) whereas the number of businesses with 20–99 employees fell by 2%.



Change in the number of persons employed across the employment size categories generally reflected the change in numbers of businesses, with the size group 1–9 employees recording the strongest average annual growth rate (3.8%) over the period from 1986–87 to 1997–98. There was virtually no change on average over this period in

the number of working proprietors and partners operating unincorporated employing businesses. Over 1997–98, there was growth in both categories of persons working in their own businesses, the number of own account workers, and working proprietors and partners, each increasing by 5%.

### 13.7 NUMBER OF BUSINESSES(a), By Employment Category of Business

Employment category	1997–98	Change from 1996–97	Average annual rate of growth 1986–87 to 1997–98
	'000	%	%
Non-employing businesses	433.6	6.0	2.5
1–9 employees	459.9	4.7	4.5
10–19 employees	49.8	8.0	2.8
20–99 employees	28.5	–2.1	1.7
100 or more employees	6.1	3.4	2.4
<b>Total</b>	<b>977.9</b>	<b>5.2</b>	<b>3.4</b>

(a) Excludes public trading and general government entities, and businesses in the Agriculture, fishing and forestry industries.

Source: *Small Business in Australia, Data Report (1321.0.40.001)*.

### 13.8 PERSONS EMPLOYED(a), By Employment Category of Business

	1997–98	Change from 1996–97	Average annual rate of growth 1986–87 to 1997–98
	'000	%	%
Persons working in their own businesses			
Own account workers	674.4	5.2	2.8
Working proprietors and partners in employing businesses	307.4	5.4	0.4
Employees			
Employees in businesses employing 1–9 persons	1 432.5	–0.4	3.8
Employees in businesses employing 10–19 persons	646.2	–0.8	2.4
Employees in businesses employing 20–99 persons	1 166.9	–6.9	1.9
Employees in businesses employing 100 or more persons	2 187.4	–0.3	1.8
Total employees	5 433.0	–1.9	2.4
<b>Total persons working</b>	<b>6 414.8</b>	<b>2.2</b>	<b>2.3</b>

(a) Excludes persons employed by public trading and general government entities, and by businesses in the Agriculture, fishing and forestry industries.

Source: *Small Business in Australia, Data Report (1321.0.40.001)*.

## The chapters on economic issues—a guide

Chapters 14 to 30 address economic issues—Australia's industries, some cross-cutting issues, and the macro-economic perspectives.

### Industries

Chapters 15 to 24, 26 and 27 provide a detailed discussion of individual industries, their structure, performance and activities.

*Chapter 15, Agriculture* presents a detailed picture of Australia's agriculture industry, including aspects such as land use, commodity production, livestock numbers and employment. Australian agriculture is a vital industry occupying a significant place in global rural trade, with wool, beef, wheat, cotton and sugar being particularly important. Australia is also an important source of dairy produce, fruit, rice and flowers. The chapter includes an article on one hundred years of agriculture in Australia.

The main features of two important primary industries in Australia, forestry and commercial fishing, are presented in *Chapter 16, Forestry and fishing*.

The mining industry is profiled in *Chapter 17, Mining*. Australia continues to rank as one of the world's leading mineral resource nations and mineral exports are the nation's largest export earner.

*Chapter 18, Energy* presents information on the energy sector, which encompasses all activities relating to the production, transformation, distribution and use of energy. In 1998–99, energy products accounted for about 17% of Australia's exports. The chapter includes an article on the reforms to the energy markets in Australia over recent years.

The manufacturing industry is discussed in *Chapter 19, Manufacturing*. This chapter presents a range of data about manufacturing as a whole and its constituent industries. It is an important sector in the Australian economy, contributing about 13% of Australia's GDP and of employment. However, the sector's share of Australian GDP has fallen over the past 20 years.

*Chapter 20, Construction* provides an analysis of the construction industry and its activities. The Construction industry engages in three broad areas of activity: residential building (houses, flats, etc.), non-residential building (offices, shops, hotels, etc.), and engineering construction

(roads, bridges, water and sewerage, etc.). A number of other parts of the Australian economy are also closely linked to the construction industry, including parts of the manufacturing, wholesale and retail trade and finance industries, in supplying components, fittings and furnishings, and in financing construction. The chapter concludes with an article on a major construction project, Stadium Australia.

A profile of Australia's service industries is included in *Chapter 21, Service industries*. These industries are the most significant and fastest growing component of the Australian economy. This chapter presents them in overview, and provides a range of statistical information for a selection of the service industries, with a particular focus on those recently surveyed in the ABS's rotating program of service industries collections. The chapter concludes with an article on gambling in Australia.

*Chapter 22, Tourism* presents statistics on Australia's tourism activities, both domestic and international. In an economic context, the effects of tourism are to generate economic activity and to transfer such activity between different parts of the economy. Tourism related activity is now recognised as a major contributor to total economic activity. In particular, international tourism has experienced substantial growth in the past decade or so.

The transport industry and transport activities are discussed in *Chapter 23, Transport*. Transport has great economic and social impact, generating substantial employment and contributing significantly to GDP, with numerous support industries ranging from automotive manufacturers to travel agencies. There are also social costs of transport—such as road accidents, traffic congestion, fuel emissions, aircraft noise pollution and shipping oil spills.

*Chapter 24, Communications and information technology* cover the communication services industries, which encompass telecommunication services, and postal and courier services. Communication services overall has been one of the fastest growing industries in Australia. The chapter also canvasses the use of information technology by businesses, farms and households. It concludes with an article summarising the findings of a study of the information technology skills of Australian school students.

*Chapter 26, Financial system* provides an analysis of Australia's financial system and its main institutions, markets and activities.

*Chapter 27, Government finance* presents statistics on the activity of the Australian public sector, comprising general government entities, public financial and public non-financial corporations. The statistics focus on financial transactions such as governments' spending, lending, taxing and borrowing activities. These transactions also impact on other sectors of the economy.

### **Cross-cutting issues**

Two chapters discuss cross-cutting issues affecting the Australian economy.

*Chapter 14, Environment* discusses a range of contemporary environmental issues affecting Australia. These include conserving and protecting Australia's biodiversity; sustainable management of Australia's land and forest resources; sustainable management of rivers and inland water; sustainable management of the marine and coastal environment; greenhouse gas emissions and climate change; protection of areas of national and international significance; and environment protection expenditure.

*Chapter 25, Science and innovation* presents information on investment (in terms of human resources and expenditure) in research and development by broad sector, and on the incidence and impacts of innovation in Australian industry.

### **The macro-economic perspectives**

The remaining three chapters focus on various macro-economic perspectives on the Australian economy.

*Chapter 28, Prices* discusses a range of price indexes providing summary measures of the movements in various categories of prices. Price indexes are used extensively to analyse and monitor price behaviour, and to adjust government payments such as pensions. The chapter provides an outline of the major consumer and producer price indexes, their history, and their underlying concepts and methodology.

*Chapter 29, National accounts* provides a systematic summary of national economic activity, as embodied in Australia's system of national accounts. The system includes national income, expenditure and product accounts, financial accounts, the national balance sheet and input-output tables. At their summary level, the national income, expenditure and product accounts reflect key economic flows: production, the distribution of incomes, consumption, saving and investment. At their more detailed level, they are designed to present a statistical picture of the structure of the economy and the detailed processes that make up domestic production and its distribution.

*Chapter 30, International accounts and trade* presents statistics on Australia's exports and imports of goods, international trade in services, international investment transactions, and the levels of Australia's foreign financial assets and liabilities. These statistics are used by economic analysts and policy advisers to monitor, evaluate and forecast developments in Australia's external trade and external sector accounts, to analyse patterns of trade and to assess types of transactions and financial claims and liabilities between Australian residents and non-residents.

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## Introduction

The ecological integrity of Australia's environment is fundamental to the long term social and economic welfare of its people. Recognition of this interdependence, however, has not prevented significant and ongoing adverse effects on Australia's unique natural systems. In most cases, adverse changes to Australia's environment can be traced back to unsustainable uses of natural resources, such as excessive clearing of native vegetation or overgrazing. One of the socio-economic implications of unsustainable environmental management is that present and future generations are faced with a number of complex and expensive ecological problems.

Information is presented in this chapter on Australia's environment and its interaction with society and the economy. It is not possible here to provide a comprehensive overview of Australia's national and international environmental issues. Those broadly covered include: conserving and protecting Australia's biodiversity; sustainable management of Australia's land and forest resources; sustainable management of rivers and inland water; sustainable management of the marine and coastal environment; greenhouse gas emissions and climate change; protection of areas of national and international significance; and environment protection expenditure.

## Conserving and protecting biodiversity

Biodiversity comprises the variety of life forms on earth, and is usually considered at three levels: genetic diversity, species diversity, and ecosystem diversity. Australia's biodiversity is considered exceptional because of its species richness and the very high proportion of species and families that are unique to this continent and its waters. The *Australia—State of the Environment Report* 1996 (SoE report) estimated that greater than one million species live in Australia, of which only about 15% have been formally described.

The SoE report also identified a severe decline in biodiversity, noting for example, that ten species of the original 144 species of marsupial fauna had become extinct over the last 200 years, that eight of the 53 species of native rodent are also presumed to be lost, and that, as a consequence, Australia has the worst record of any nation for conserving its mammal species for future generations. Table 14.1 summarises the number of Australian flora and fauna species and communities currently scheduled under Commonwealth legislation as at risk (vulnerable or endangered) or presumed extinct.

**14.1 BIODIVERSITY SCHEDULED UNDER COMMONWEALTH LEGISLATION AS AT RISK OR PRESUMED EXTINCT—At August 1999**

Species	Endangered	Vulnerable	Extinct
Fish	11	12	0
Amphibians	13	3	0
Invertebrates	0	4	0
Reptiles	12	40	0
Birds	36	60	23
Mammals	35	20	19
Non Vascular plants	1	1	0
Plants	370	700	68
Ecological Communities	2	0	0
<b>Total</b>	<b>478</b>	<b>840</b>	<b>110</b>

Source: Environment Australia, Biodiversity Group.



A number of factors have contributed to the ongoing decline of Australia's biodiversity, all of which are directly or indirectly related to the resource intensive nature of Australia's economic activity and the steady increase in the size of its human population. These factors include urban development, recreational and commercial fishing, aquaculture, forestry and harvesting of timber (e.g. for firewood), agriculture, mining, water harvesting, international shipping, the introduction and spread of pests, weeds and diseases, pollution, changed fire frequency and intensity, and climate change. This list is not exhaustive and there is considerable overlap under each broad heading. Adverse impacts from agriculture, for example, may result from pressures such as grazing, land clearing, fertiliser use, use of toxic and persistent chemicals, water harvesting, the introduction and spread of pests and weeds, and the use of fire as a land management tool.

The adverse impacts of biodiversity decline on the long term socio-economic welfare of people are likely to be profound. Negative impacts may include loss of economic opportunities from the commercial use or harvesting of renewable resources, disruption or destruction of important ecological processes upon which critical life processes depend, and loss of aesthetic, spiritual or cultural experiences intrinsic to the quality of human life.

### Responses to declining biodiversity

In Australia it is largely the responsibility of governments to provide the institutional frameworks (essentially legislative) to ensure that ecological limits are properly integrated into decision-making. One of the most recent of the Commonwealth Government's institutional reforms relevant to biodiversity is the *Environment Protection and Biodiversity Conservation Act 1999*. This Act seeks to promote the conservation of biodiversity and triggers Commonwealth involvement in decision-making when matters are defined as being of national environmental significance. Matters which do not meet this threshold of significance are to be dealt with by statutory frameworks at State or local government level.

The delineation of roles and responsibilities within the three tiers of Australian government is intended to improve conservation outcomes by ensuring that all matters of national importance trigger Commonwealth involvement, while providing an impetus for State and local government reforms through accreditation of

standards and devolution of powers. Matters identified by the Act as being of national significance include World Heritage properties, Ramsar listed wetlands (of international significance), places of national significance, nationally endangered or vulnerable species and communities, migratory species and cetaceans (whales, dolphins and porpoises), nuclear activities, and management of most of Australia's marine and coastal environment.

Another important component of protecting Australia's biodiversity values is extending Australia's National Reserve System. The Commonwealth Government, in partnership with State and Territory conservation agencies, has developed the *Interim Biogeographic Regionalisation of Australia* and the *Interim Scientific Guidelines for Establishing the National Reserve System* to assist in planning and prioritising key areas of land for reservation. A similar process is occurring for protection of marine biodiversity, with bioregional planning helping to prioritise areas for inclusion within the National Representative System of Marine Protected Areas.

## Sustainable management of Australia's land, forest and woodland resources

### Land

Australia's land mass in geological terms is very old, is characterised by relatively infertile soils and is predominantly dry (it is described in detail in the section *Geography of Australia in Chapter 1, Geography and climate*). These features have contributed to the vulnerability of the continent in relation to adverse impacts arising from intensive and extensive land use; as a consequence, Australians are faced with a number of serious and widespread land degradation issues.

A key Commonwealth Government sponsored proposal to assess the condition of Australia's land is the National Land and Water Resources Audit, a Natural Heritage Trust program. The main objective of the audit is to provide nationwide assessments of Australia's land, vegetation and water resources to support sustainable use of the continent's natural resources. Themes identified by the audit for assessment include: surface and ground water management; dryland salinity; vegetation cover, condition and use; rangelands monitoring; land use change, productivity, diversity and sustainability of agricultural enterprises; capacity of and opportunity for farmers and other natural resource managers to

implement change; and river, estuary, catchment and landscape health. These themes illustrate that there are important social, economic and ecological dimensions to the problems facing Australia's natural resource managers.

A conservation value of Australia's landscape not covered by the audit is the idea of 'wilderness'. This concept refers to areas of land that are remote from the influences and structures of modern society, and has been used to develop a national database on wilderness quality called the National Wilderness Inventory (NWI).

The purpose of the NWI is to provide decision makers with a way of documenting land condition to assist policy and management of Australia's natural areas. The Inventory is based on four wilderness quality indicators: remoteness from settlements, remoteness from access, apparent naturalness and biophysical naturalness. The Inventory provides a broad, national picture of land disturbance and change across the continent in relation to these qualities.

It should be noted that this term is not acceptable to many Indigenous people, who see 'wilderness' areas as cultural landscapes that have been influenced by their people for thousands of years. This caveat aside, the concept of wilderness has been recognised in State and Territory legislation and in Commonwealth policy documents, such as the National Forest Policy Statement. There has also been some improvement in finding common ground concerning wilderness issues with Indigenous communities through initiatives such as the Malimup Communique (the outcome of a meeting convened by the Australian Heritage Commission in 1998, comprising representatives from Indigenous communities and land councils, government land management agencies and conservation groups).

The National Wilderness Inventory currently resides with the Commonwealth Department of Environment and Heritage as part of the Environmental Resource Information Network (ERIN). Map 14.2 shows mean wilderness values across the Australian continent (this map is a slightly simplified version of what is normally produced by the NWI database, which is capable of showing much finer scales of disturbance to wilderness values).

Mean wilderness values shown in map 14.2 are derived from four equally weighted indicators of wilderness quality remoteness from established, mechanised access routes (e.g. distance from

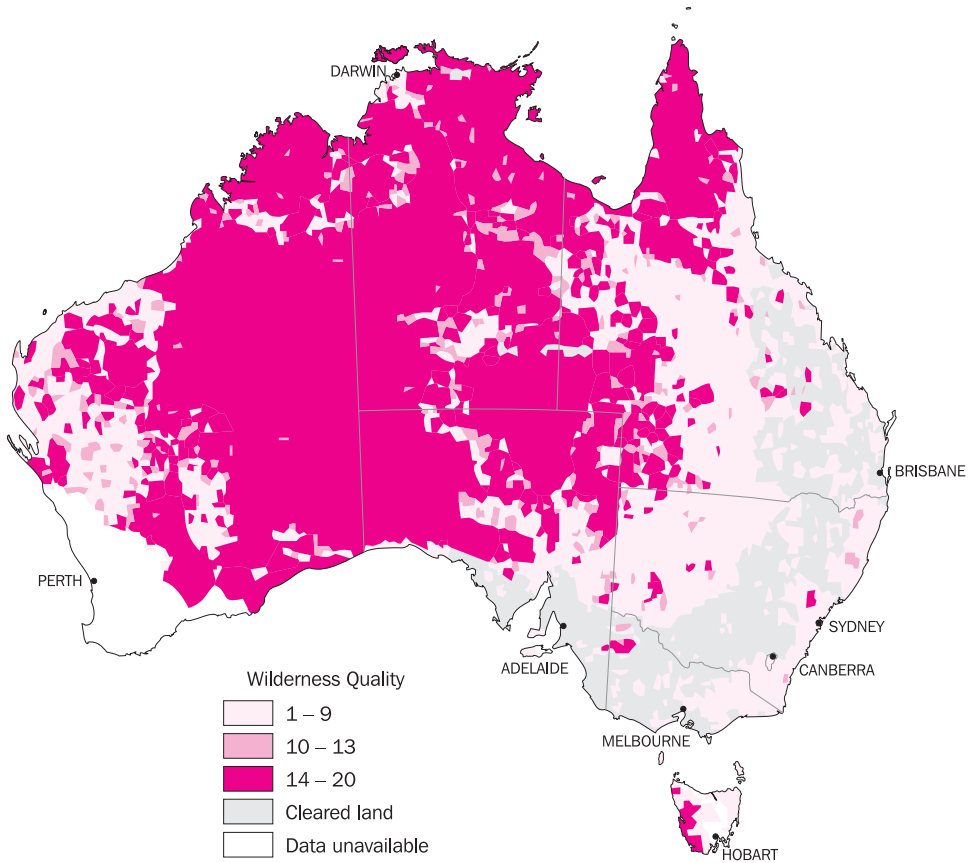
roads and permanent tracks); remoteness from settlement (e.g. distance from towns and cities); biophysical naturalness (e.g. the amount of intact native vegetation cover and the type of land use in place); and aesthetic naturalness (the distance from a set survey point to the nearest defined, visible structure). Each of these indicators is given a value, and the values are summed. Areas shown in the map with mean wilderness values of 14–20 are likely to be in a relatively natural state in terms of pre-European vegetation and land cover, have few roads and vehicle tracks, have little built infrastructure (e.g. modern buildings) to be seen, and have patterns of land use that cause few direct adverse ecological impacts. Areas that have mean wilderness values less than 14 have experienced significant impacts in terms of the above indicators. These areas may be partly cleared, contain highly visible modern infrastructure, be subject to intensive or semi-intensive land use, be serviced by many roads and tracks, or reflect any combination of these impacts on wilderness quality.

## Sustainable management of forests

Forest is generally defined in terms of tree coverage and height of trees. In Australia there are hundreds of different types of native forest communities. Examples of broad forest groups include eucalypt forest, acacia forest, rainforest and mangrove forests. Estimates of the amount of forest left uncleared in Australia vary and are subject to differences in definitions and data quality limitations. The SoE report estimated that in 1788 forests covered about 9% of the continent and now cover about 5%. The *Australia's State of the Forests Report 1998* (SoF report) broadened the definition of forest to encompass additional areas previously defined as woodlands, so as to be more compatible with international definitions of forest. This change in definition increases the estimate of forested land to 20% of the continent (approximately 156 million hectares), with the overall reduction of forest cover from 1788 to 1980 estimated to be around 36%. (See also the section *Native forest* of Chapter 16, *Forestry and fishing*.)

Historical rates of clearing were clearly not sustainable, and provide the context for the remaining estate when assessing the risks associated with fragmentation and the continued use of forests for economic purposes, such as harvesting for wood and non-wood products, clearing for agriculture, recreation and tourism. Map 14.3 shows the amount of native forest currently in conservation reserves in Australia.

14.2 AUSTRALIAN CONTINENT, Mean Wilderness Values

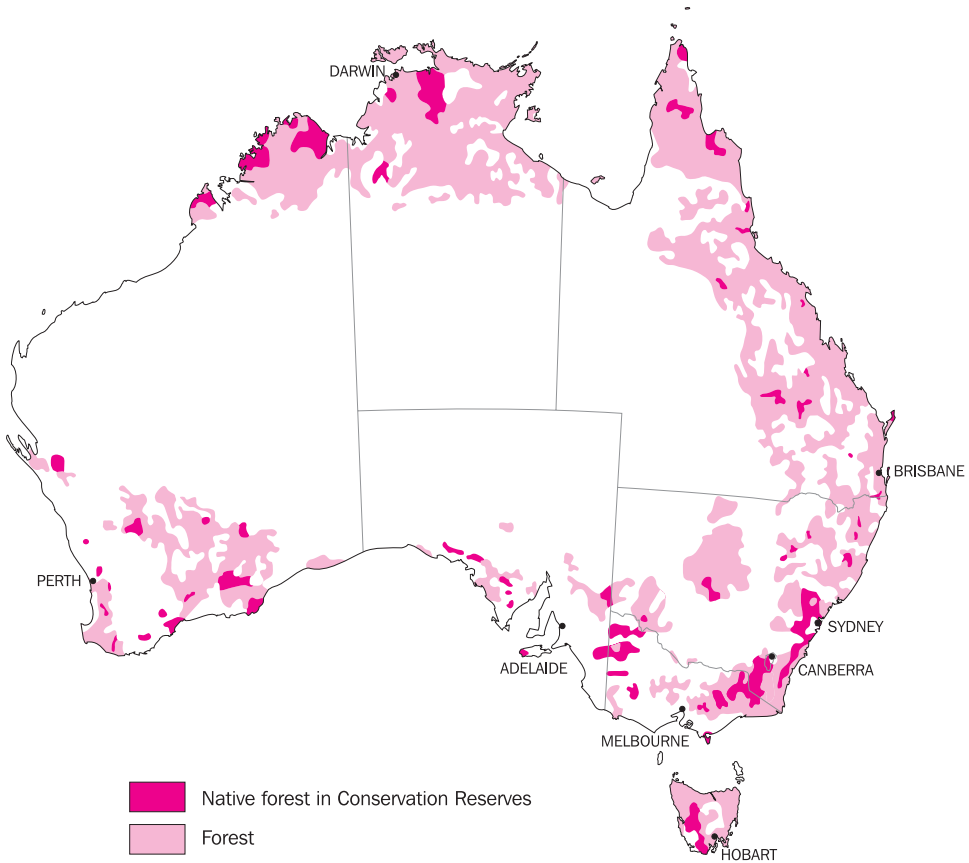


Source: Environmental Resource Information Network, 1999.

The economic performance of the forestry industry is integral to the debate on the sustainability of current and proposed levels of timber harvesting in Australia, and one contentious component of this debate is the export of woodchips. Woodchips are derived from a variety of sources, with varying levels of ecological impact. Typical sources of timber for woodchipping include native pulp logs removed as part of integrated harvesting, pulp logs from thinnings in sawlog plantations, short rotation hardwoods grown specifically for pulp, forest

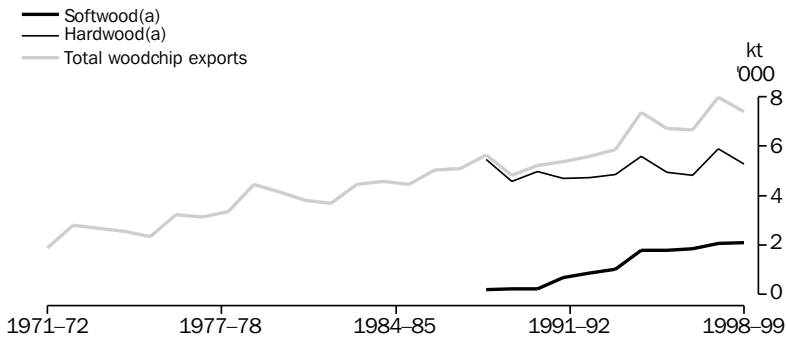
residues (branches and other waste left after forest harvesting), softwood (pine) plantations, and sawmill residues. None of these sources are without ecological impacts, but the direct harvesting of native forests for hardwood chips is arguably the least desirable source of timber, given the relatively low value of the commodity produced for export. Graph 14.4 shows the volume of softwood and hardwood chips exported from Australia since 1971–72, while graph 14.5 shows the export price per tonne for these commodities over the last decade.

## 14.3 LOCATION OF NATIVE FOREST IN CONSERVATION RESERVES



Source: Australia's State of the Forests Report 1998; National Forest Inventory, Bureau of Rural Sciences.

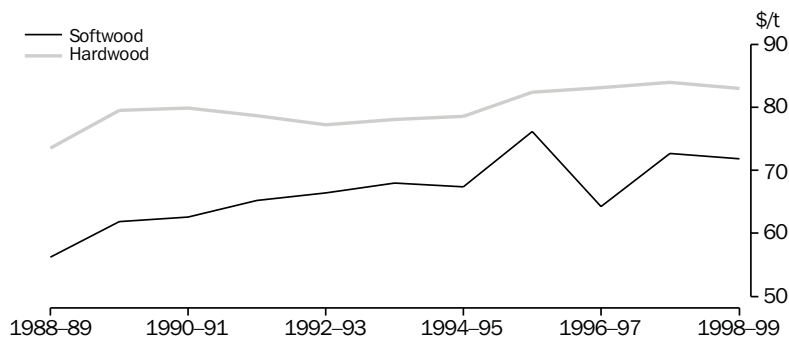
## 14.4 VOLUME OF WOODCHIP EXPORTS, By type



(a) Separate data for softwood and hardwood exports unavailable prior to 1988-89

Source: International Trade, Australia—Information Consultancy Subscription Service (5464.0).

#### 14.5 WOODCHIP EXPORT PRICES, By Type



Source: ABS, *International Trade*, electronic data service (5464.0).

The SoF report found a significant disparity in the volume and value of trade in wood products, indicating that Australia has increased the volume of its wood product exports without a commensurate increase in financial gain. In explanation the SoF report suggested that the deficit in terms of trade for wood products is because Australia exports mostly raw materials (the bulk of which are woodchips) and imports mainly finished products. (See also the section *Wood and paper products* in Chapter 16, *Forestry and fishing*.)

The question of whether or not Australia's overall use of its forests for wood products is ecologically sustainable is contentious, and at this point the answers remain uncertain. Initiatives to clarify this uncertainty are being developed as part of Comprehensive Regional Assessments and Regional Forest Agreements, which seek to develop an information network to support sustainable use of forest resources. An important component of this network is the National Forest Inventory, which collects and stores data relevant to forest resource issues.

### Temperate woodlands

Woodlands are distinguished from forest by being structurally more open forms of habitat, and in temperate Australia, when they are in good condition, woodlands typically consist of large,

widely spaced trees with a species-rich ground-layer of grasses, herbs and scattered shrubs. In 1996 the Royal Australasian Ornithologists Union (now Birds Australia) identified temperate woodlands as the most threatened type of wooded ecosystem in Australia, and published *Conservation Statement No. 10—Conserving Woodland Birds in the Wheat and Sheep Belts of Southern Australia*. This conservation statement noted that 85–90% of Australia's temperate woodland ecosystems have been replaced with a highly modified agricultural landscape, and that temperate woodlands contain one of the highest concentrations of extinct and threatened birds of any region or habitat in Australia; it estimated the cost of lost agricultural production in the wheat and sheep belt due to land degradation to be \$400m a year.

Conservation Statement No.10 also noted that firewood production is Australia's second largest timber industry in terms of materials used (behind woodchipping), consuming around six million tonnes of wood per year. This production has significant and ongoing adverse impacts on biodiversity in woodland remnants by reducing the structural diversity of habitat and the number of nest hollows available to the one-third of woodland birds that require these hollows to reproduce.

Figures on the production of firewood derived solely from woodlands are not readily available. However, some idea of the demand for firewood production in temperate Australia can be inferred from the consumption of wood and woodwaste for fuel in NSW and Victoria (see graph 14.6). Aggregates derived from the ABARE report *Australian Commodity Statistics* indicate that these States consumed around 66 million tonnes of wood and wastewood for fuel between 1980 and 1998. This consumption accounts for about 60% of national consumption during this period. As a general indication of how this relates to pressure on woodlands and forests in these States, Conservation Statement No.10 cited that around 60% of firewood produced in New South Wales and Victoria came from native woodlands and box-ironbark forests.

## Sustainable management of Australia's rivers, inland waters and ground water

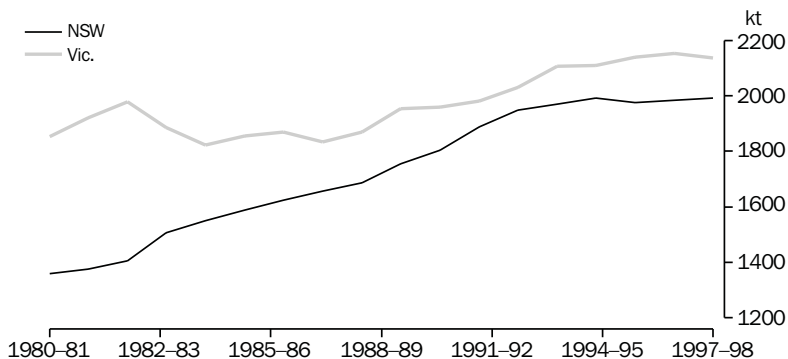
The ABS compendium *Australians and the Environment* noted that most of Australia's land mass is classed as arid or semi-arid, with median rainfall for 80% of the continent less than 600 millimetres, and that about half of the country only receives 300 millimetres (for more detail see the section *Rainfall and other precipitation* of *Chapter 1, Geography and climate*). Another important feature of Australia reported in the compendium, and in the section *Water resources* of *Chapter 1, Geography and climate*, is the low percentage run-off from precipitation that is yielded as streamflow and

ground water, a characteristic resulting from high rates of evaporation and relatively low relief. These features explain why the SoE report identified Australia as having the highest level of water storage per capita of any nation in the world, as successive governments and water resource managers have sought to overcome the natural variability inherent in our rainfall patterns and catchment systems.

In terms of demand for water, studies of water usage in Australia have indicated that irrigation for agriculture is by far the largest use of water, representing around 70% of all water used annually. This estimate suggests that management of water allocation for agriculture is a priority issue.

Another important issue is the reuse of water by industry. Table 14.7 provides information on the supply of effluent for reuse in Australia, while table 14.8 shows which industry groups are using this water. Although only four years of data are presented, the tables show a general trend toward more reuse of water by industry in Australia. To place these volumes of reuse water in context, *Water in Australia, Resources and Management* presented data which estimated annual water use in Australia to be about 14,600,000 megalitres (a megalitre is one million litres) and industrial/commercial use to be 1,270,000 megalitres. Based on these figures, reuse water supplies at most about 1% of total water use in Australia and from 8 to 11% of industrial/commercial use. Readers interested in a more comprehensive overview of Australia's use of its water are referred to *Water Account, Australia* (4610.0).

**14.6 USE OF WOOD AND WOODWASTE FOR FUEL**



Source: ABARE 1998, *Australian Commodity Statistics*.

**14.7 SUPPLY OF REUSE WATER, By Industry Group**

	1993-94	1994-95	1995-96	1996-97
Industry group	megalitres	megalitres	megalitres	megalitres
Mining	22 039	22 189	24 609	40 609
Basic metals and products	3 118	3 542	3 352	14 613
Fabricated metal products	2	2	2	2
Transport equipment	604	604	604	604
Electricity and gas	4 242	4 907	6 309	6 138
Water supply; sewerage and drainage services	62 804	68 939	71 807	82 438
Transport and storage	2 220	2 220	2 220	2 220
Government administration	589	589	589	589
<b>Total</b>	<b>95 619</b>	<b>102 991</b>	<b>109 492</b>	<b>147 213</b>

Source: *Water Account, Australia* (4610.0).

**14.8 USE OF REUSE WATER, By Industry Group**

	1993-94	1994-95	1995-96	1996-97
Industry group	megalitres	megalitres	megalitres	megalitres
Livestock, pasture, grains and other agriculture	29 066	36 100	38 021	38 118
Services to agriculture; hunting and trapping	40	50	40	0
Forestry and fishing	3 146	3 100	3 147	3 068
Mining	24 389	24 588	26 539	42 811
Basic metals and products	4 258	4 776	4 633	15 952
Fabricated metal products	2	2	2	2
Transport equipment	604	604	604	604
Electricity and gas	4 242	5 108	6 766	6 912
Water supply; sewerage and drainage services	2 158	1 891	1 929	4 339
Construction	1	51	39	72
Accommodation, cafes and restaurants	0	0	25	23
Transport and storage	2 220	2 220	2 220	2 220
Government administration	373	397	408	402
Cultural, recreational and personal services	25 120	24 104	25 119	32 690
<b>Total</b>	<b>95 619</b>	<b>102 991</b>	<b>109 492</b>	<b>147 213</b>

Source: *Water Account, Australia* (4610.0).

## Rivers and inland waters

Many of Australia's rivers are becoming increasingly degraded, as evidenced by blue-green algal blooms, declining fish stocks, high levels of salinity or acidity, the presence of persistent and toxic chemicals and other forms of water pollution, the loss or contraction of wetlands, and significantly reduced environmental flows.

In addition to threatening critical ecological processes, declines in biodiversity have occurred. For instance, The NSW Rivers Survey recorded only 39 of the 55 species of native freshwater fish previously known to have occurred in NSW rivers, indicating that the abundance and distribution of native fish populations are in severe decline in the rivers surveyed.

Initiatives to improve this situation include the development by the Council of Australian Governments (COAG) of a wide range of water

reforms designed to address issues such as inadequate pricing mechanisms, over allocation of water resources and the implementation of environmental flows to improve and maintain river health. Other initiatives include monitoring of river health through Natural Heritage Trust funding, efforts to improve the efficiency of water use, and initiatives in environmental engineering to reduce adverse impacts from impoundments (e.g. fish ladders to allow native fish populations the opportunity to move between different aquatic environments to complete their life cycle and/or maintain their distribution).

One other important information resource in relation to sustainable management of rivers is the development, by the Australian Heritage Commission in conjunction with researchers from the Australian National University, of a Wild Rivers database, which aims to provide decision makers with a national picture of Australia's 'wild' rivers for use in catchment management and



planning. 'Wild' rivers in this context are river systems where biological and hydrological processes continue without major interference. The assessment of a river's 'wild' values, based on the calculation of a River Disturbance Index, provides an opportunity for the conservation of these special and relatively undisturbed river systems.

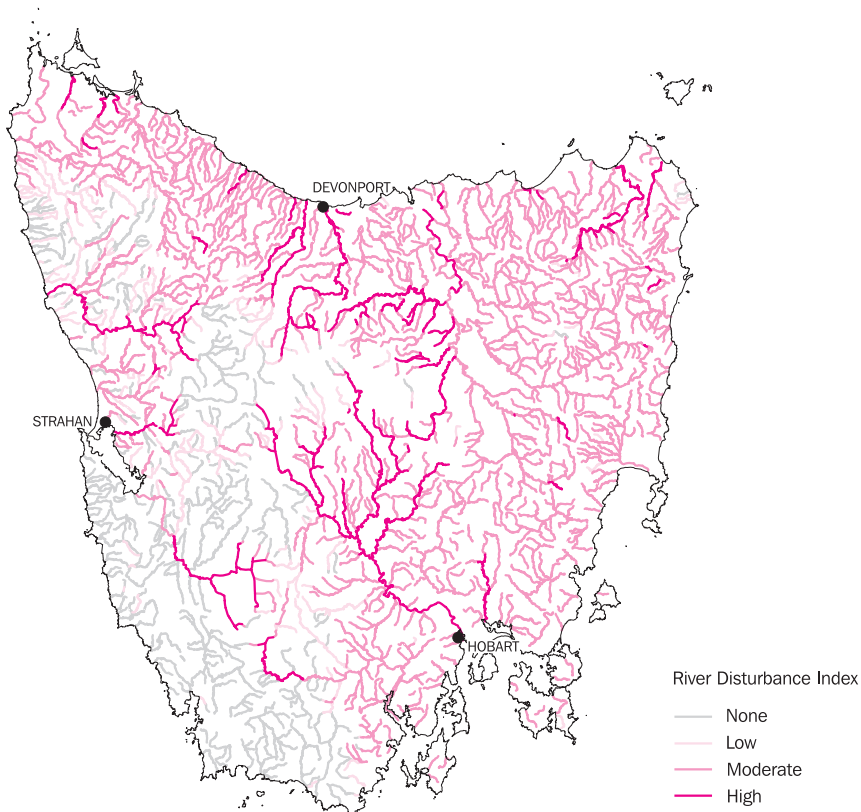
Map 14.9 is a simplified version of a map which can be generated using the Wild Rivers database, and shows the broad contrast between disturbed and undisturbed rivers in Tasmania. (Maps produced from the database have a finer scale for showing river disturbance and depict six colour codes of disturbance, grading from rivers which have suffered little or no adverse impacts to those which are highly disturbed.)

Rivers which are rated as having low wild river values have been adversely affected by European settlement and show marked changes in the chemical and physical properties of their water,

such as elevated levels of dissolved nutrients (eutrophication), increases in salinity or the presence of contaminants. Other signs that may indicate that rivers are degraded in terms of wild river values include changes in the biological communities living in and near the river, changes in the river's shape, and altered flow regimes. These changes have resulted from pressures such as grazing in the riparian zone, clearing of native vegetation for agriculture or urban development, diversion of water into dams and other impoundments, flow regulation, irrigation, introduced weeds and pests, the use of persistent chemicals, and mining (e.g. gravel extraction).

Rivers with high wild river values have not been subject to the same degree of pressure and have physical, chemical and biological characteristics that resemble their condition prior to the arrival of the first Europeans. They are usually surrounded by intact areas of native vegetation and have high aesthetic qualities. Rivers rated as having moderate wild river values are intermediate between these two states.

**14.9 TASMANIA, Wild River Values**



Source: Environmental Resource Information Network, 1999.



Ground water

Only 2.7% of the world's water is fresh water (the remainder is sea water) and of the fresh water not frozen at the poles, the Water Resources Commission of NSW cited that about 95% is ground water. This is also a very important water resource in the Australian context. Two of the features of this water resource noted in the ABS compendium *Australians and the Environment* is its vast extent (ground water underlies about 60% of Australia) and the heavy dependence of Australian communities on this water. For instance, 65% of all water used in the Perth area in Western Australia is ground water, and about 600 other small Australian communities depend on ground water for their domestic water supply. Graph 14.10 shows the proportion of ground water used compared to surface water used in the twelve Australian Drainage Divisions. (For the location of the Drainage Divisions see map 1.14 in the section *Water resources of Chapter 1, Geography and climate.*)

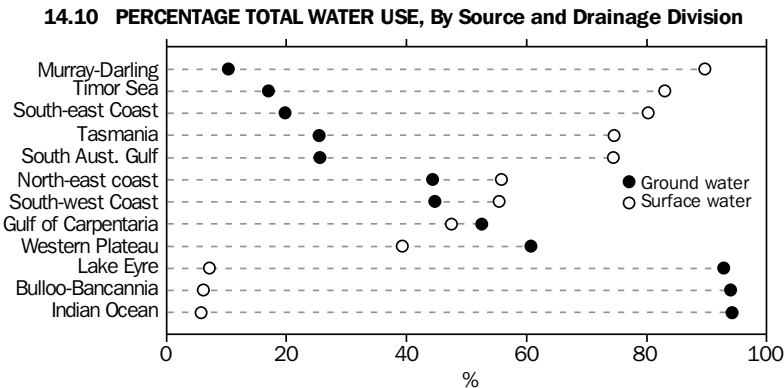
Ground water is formed when rain that does not run off to streams moves into spaces between the rocks in soil. Water movement through the soil and rocks is driven by gravity, which can be a very slow process. *Australians and the Environment* identified three broad categories of water bearing formations, or aquifers:

- unconsolidated sediments consisting mostly of clays, silt sand and gravel, which provide a shallow aquifer;

- porous rocks in large basins such as the Great Artesian Basin; and
- fractured rocks, the water content of which is dependent on a number of natural factors such as climate, vegetative cover and type of rock.

The nature of ground water, and variability in the type of aquifers where ground water accumulates, make predicting recharge rates complex and there is a paucity of hard data on these processes. As recharge rates are driven largely by gravity, ground water is relatively static in terms of water movement. This characteristic makes ground water very susceptible to contaminants, which may leach into the recharge waters from the surface of the land. The SoE report noted that once an aquifer is seriously contaminated, it is likely to remain polluted indefinitely. Other threats to ground water resources identified in the SoE report include a lack of information and monitoring, land use change such as clearing of forests, and the introduction of irrigated agriculture (which can lead to waterlogging and increases in salinity).

Concern that ground water may be at risk from inefficient or excessive use is also an issue in Australia. *Australians and the Environment* noted that computer modelling of the Great Artesian Bore indicated declining yields of water, and that extractions probably exceeded rates of recharge. Key initiatives in this respect include water efficiency measures, such as capping bores, and the development of an information network as part of the National Land and Water Resources Audit.



Source: DPIE, 1985 Review of Australia's Water Resources and Water Use.

The 1985 *Review of Australia's Water Resources and Use* estimated the volume of Australia's divertible ground water to be in the order of 30,300 gigalitres (a gigalitre is one billion litres). The term divertible ground water in this context was defined in the review as "estimates of the average annual volume of water which, using current technology, could be removed from developed potential surface water or ground water sources on a sustained basis, without causing adverse effects or long term depletion of storage". Given the uncertainty surrounding the recharge rates of aquifers, however, estimates of divertible ground water presented in table 14.11 should be interpreted with caution. The section *Water resources* of *Chapter 1, Geography and climate* provides more information on Australia's ground water and surface water resources. For the location of the Drainage Divisions see map 1.14 in that chapter.

## Sustainable management of Australia's marine and coastal environment

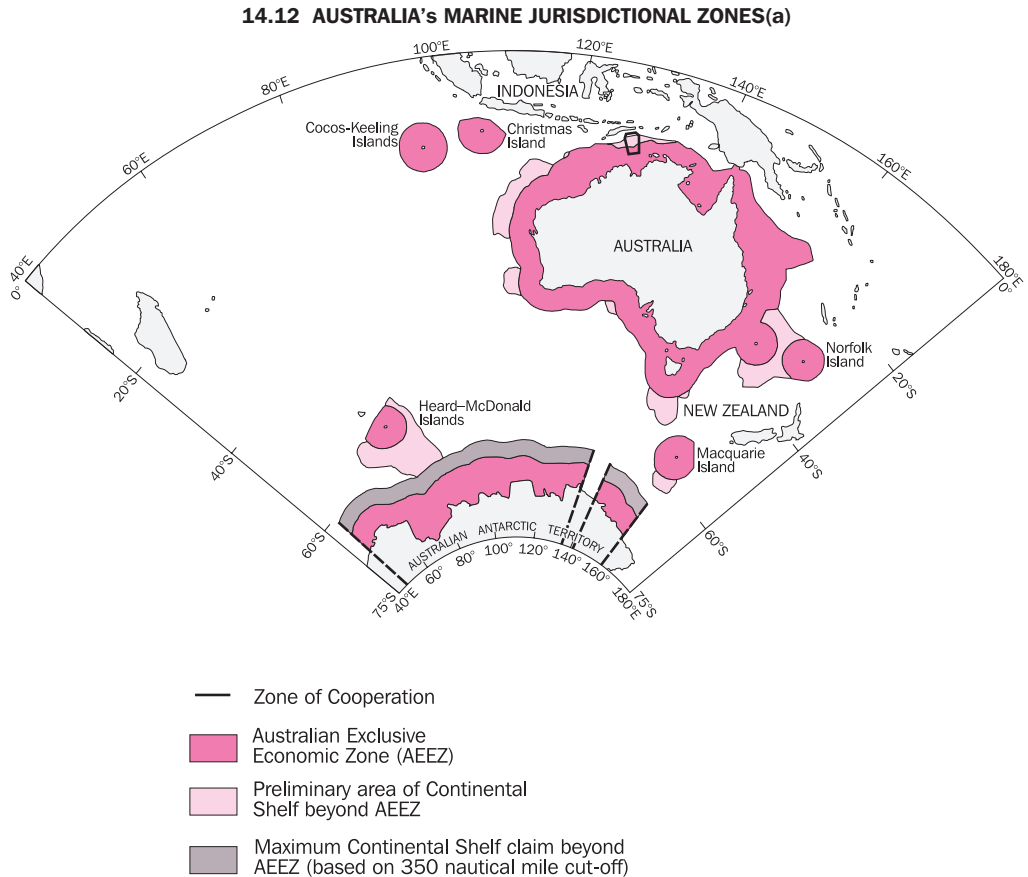
In 1994 the United Nations Convention on the Law of the Sea came into force, granting Australia rights and responsibilities over 16 million square kilometres of ocean (more than twice the area of the continent). Map 14.12 shows the size and location of Australia's jurisdictional responsibilities. Planning and management of this vast area has been centred on *Australia's Oceans Policy* developed by the Commonwealth Government, which has jurisdiction over much of the oceans and seas.

The Oceans Policy identifies some of the pressures on the oceans as fisheries and aquaculture, shipping, mineral and petroleum activities, tourism and recreation, coastal development, run-off and point source pollution, and population growth. Many of these broad issues relate to our use of the oceans and adjoining land for economic benefit. Australia's marine industries make a significant contribution to the economy (estimates of total production are provided in table 14.13). Key developments for managing the impacts of industry on the marine environment are the use of bioregional mapping, planning to intergrate ecology into decision-making, and the development of a National Representative System of Marine Protected Areas.

**14.11 AUSTRALIA'S GROUND WATER RESOURCES AND ANNUAL USE, By Drainage Division**

Drainage Division	Area of aquifers square km	Divertible ground water gigalitres	Annual ground water use gigalitres	Annual total water use gigalitres
North-east Coast	114 250	2 875	735	1 660
South-east Coast	71 660	3 350	500	2 530
Tasmania	7 240	553	44	174
Murray-Darling	908 500	3 680	894	8 660
South Australian Gulf	2 500	406	80	312
South-west Coast	328 000	3 010	303	678
Indian Ocean	487 400	1 668	60	64
Timor Sea	328 900	6 230	22	128
Gulf of Carpentaria	340 250	3 210	128	244
Lake Eyre	834 030	2 209	125	135
Bulloo-Bancannia	90 100	167	17	18
Western Plateau	1 706 700	2 774	25	41
<b>Total</b>	<b>5 219 530</b>	<b>30 300</b>	<b>2 933</b>	<b>14 600</b>

Source: 1985 *Review of Australia's Water Resources and Water Use*.



(a) Preliminary.

Source: Australian Geological Survey Organisation, 1995.

**14.13 AUSTRALIAN MARINE INDUSTRIES,  
Estimated Annual Value of Production**

Industry	\$b
Offshore petroleum and gas(a)	7.8
Commercial fisheries and aquaculture(b)	2.0
Defence ship building(b)	1.1
Civil ship building(b)	0.8
Boat building(c)	0.4
Coastal shipping(c)	0.6
International shipping(c)	1.6
Domestic marine tourism and recreation(c)	13.2
International marine tourism and recreation(c)	2.0
<b>Total</b>	<b>29.3</b>

(a) Estimate for 1995–96. (b) Reference year 1994–95. (c) Reference year 1993–94.

Source: Marine Industry Development Strategy, 1997.

One particularly serious problem relevant to the oceans is the widespread and possibly irreversible bleaching of coral reefs, followed by starvation and death of the living reef. This problem has been linked with rising sea temperatures and changes in the alkalinity of the seas, with greenhouse gas emissions a probable cause. This suggests a possible link between the world's dependence on non-renewable fossil fuels and the long term survival of the Great Barrier Reef and other coral reef systems around the world.

The adverse socio-economic impacts resulting from the widespread destruction of coral reef systems are potentially serious. For instance, the Greenpeace report *Climate Change, Coral Bleaching and the Future of the World's Coral Reefs* estimated the combined value of tourism generated annually by the Great Barrier Reef, the Floridian reefs and the Caribbean reefs to be

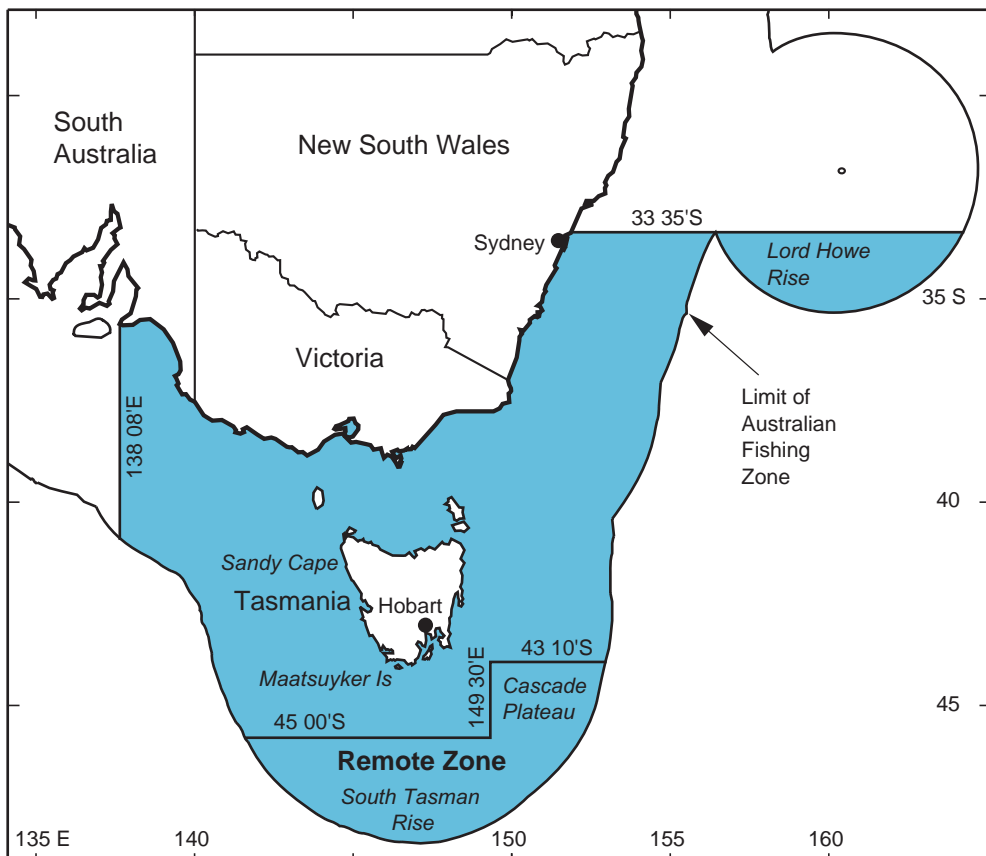
about \$144b. Important fisheries, and other established or emerging marine industries, which depend on marine biodiversity for their growth and/or survival, would also be severely affected.

### Sustainable fisheries management and aquaculture

Well managed fisheries are potentially a renewable resource, as natural populations have the ability to recover their numbers and biomass through reproduction and growth. This process breaks down if catches exceed the capacity of natural systems to recover. Some of the factors which contribute to unsustainable fishing (i.e. over-fishing) include ignorance of the population ecology and biology of targeted species, destructive or wasteful methods of capture (e.g. by-catch), lack of monitoring, illegal fishing and/or misreporting of catch data, water pollution, and exotic aquatic pests and diseases.

Map 14.14 shows the location of the South East Fishery (Australia's total fisheries, including the South East Fishery, are identified in Map 16.5 of the section *Fisheries resources* of Chapter 16, *Forestry and fishing*). Graph 14.15 shows total production and Orange Roughy production from this fishery between 1989–90 and 1996–97. As can be seen from the graph, the decline in total production was mainly due to the substantial decline in the production of Orange Roughy (*Hoplostethus atlanticus*), which went from a reported 39,913 tonnes in 1989–90 to 4,479 tonnes in 1996–97. This sharp drop came about because of declining stocks of Orange Roughy and the introduction of total allowable catches to reduce fishing pressure. (The quantity and value of total Australian fisheries production are set out in tables 16.6 and 16.7 of Chapter 16.)

14.14 AUSTRALIA'S SOUTH EAST FISHERY



Source: Bureau of Resource Sciences, 1996.

Contributing factors to the sudden contraction of Orange Roughy production were the sexual maturation age of this species (thought to be between 20 and 40 years) and its low fecundity, biological parameters cited in CSIRO's *Stock Assessment Report 1997—Orange Roughy*. Another important behavioural trait of this species is that it gathers in large numbers around rises in the ocean floor when it is ready to spawn. This behaviour makes the breeding component of the population easy to target by deep sea fishermen, and contributes to its vulnerability to unsustainable fishing, as large amounts of biomass can be harvested in short amounts of time.

International competition for new fisheries also places Orange Roughy populations at risk of over-fishing. For instance, spawning aggregations of Orange Roughy gathered at South Tasman Rise (see map 14.14) were fished for three weeks by large foreign factory trawlers despite Australia claiming these stocks as 'straddling stock' (living on the edge of its Exclusive Economic Zone) and requesting that these ships stop fishing. These sorts of incidents highlight the difficulties of regulating fishing in the vast areas of Australia's Exclusive Economic Zone, and may become more prevalent as international fisheries elsewhere collapse and capital investment pressures force the international fishing fleet to seek new areas in which to fish.

Aquaculture is an important, growing, export orientated industry in Australia. Aquaculture production was valued at over \$490m in 1997–98 (see table 16.11 in the section *Value of fisheries production* of *Chapter 16, Forestry and fishing*). Like most farming, however, it is subject to ecological limits, based on the capacity of Australian waters to provide suitable sites and the inputs that enable the farmed animals to grow successfully to market size.

A key issue in this respect is that many of the marine aquaculture systems in Australia are intensive in nature and are farming species (e.g. salmonids and tuna) that require high protein diets. In the past these high protein dietary requirements have placed significant pressures on fisheries (such as the mackerel fishery in Tasmania), and have led to the import of bait fish (such as pilchards) from overseas. Importing fish for aquaculture risks introducing pathogens and exotic pests, which may threaten biodiversity, the viability of aquaculture ventures, access to some export markets and the productivity of natural fisheries. The long term stability of these forms of aquaculture is therefore likely to depend on developing ecologically sustainable sources of protein suitable for the high value species that are economically attractive to farm. Other important future directions include mitigating the risk of introducing pathogens and facilitating the growth of farming systems that are less dependent on this input.

**14.15 SOUTH EAST TRAWL FISHERY, Production Data**



Source: *Fish Account, Australia (4607.0)*.

## Greenhouse gas emissions and climate change

Fossil fuels provide around 94% of Australia's energy needs, and much of Australia's economic activity is energy intensive in nature. The design of Australia's cities and the large distances between settled areas also contribute to relatively high levels of energy use per capita due to transport of people and freight.

One implication arising from Australia's dependence on fossil fuels is the production of greenhouse gas emissions and related adverse ecological, and socio-economic impacts due to climate change and environmental degradation. Graph 14.16 shows Australia's production of carbon dioxide from its use of energy over a ten year period.

A key component of Commonwealth Government policy on greenhouse gas emissions as agreed to at Kyoto (the Kyoto Protocol), is to limit the growth of greenhouse gas emissions in the period 2008–12 to 8% above 1990 levels. Overall, developed countries party to the Kyoto Protocol have agreed to reduce their collective emissions to at least 5% below 1990 levels. The argument for Australia's differentiated target was based on the nature and structure of its economy and energy systems. Further information about Australia's energy profile is included in *Chapter 18, Energy* and the ABS publication *Energy Accounts for Australia* (4604.0).

## Protection of heritage places of national and international significance

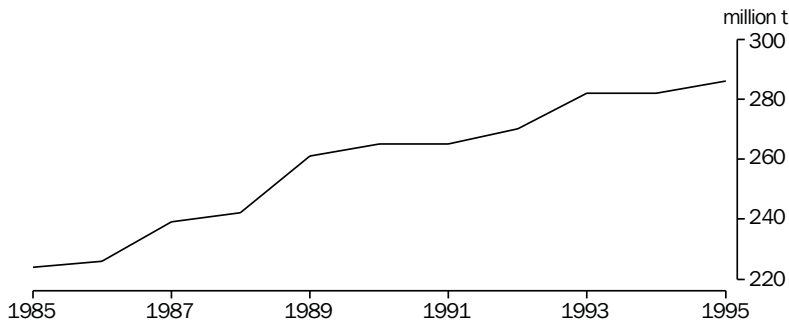
Australia contains an unusual number of taxa (species and families) found nowhere else in the world (as discussed in *Conserving and protecting biodiversity*), and is rich in other unique natural values and phenomena. Aspects of Australia's indigenous cultural heritage and built historical heritage are also of national and international significance. For a discussion of the issues, see the section *Cultural and natural heritage* of *Chapter 12, Culture and recreation*.

### World heritage

Places of outstanding universal natural or cultural significance may be included on the World Heritage List, under the Convention Concerning the Protection of the World Cultural and Natural Heritage. At August 1999 there were 582 properties on the World Heritage list. The majority (445 properties) were included because of their cultural importance, 117 were listed because of their outstanding natural values and 20 properties had world heritage values that were both natural and cultural in nature.

Australia has thirteen World Heritage properties: Australian Fossil Mammal Sites; Central Eastern Rainforest Reserves; Fraser Island; Great Barrier Reef; Kakadu National Park; Lord Howe Island Group; Shark Bay; Tasmanian Wilderness; Uluru-Kata Tjuta National Park; Wet Tropics of Queensland; Willandra Lakes Region; Heard and McDonald Islands; and Macquarie Island.

**14.16 CARBON DIOXIDE EMISSIONS FROM ENERGY USE IN AUSTRALIA**



Source: OECD Environmental Data Compendium 1997.

World Heritage listing of a property provides significant statutory protection to its outstanding natural and cultural values, particularly provisions that require the development, funding and implementation of management plans. World Heritage properties are also economically important, providing regional employment opportunities and income through tourism and related economic activities.

### Places of national significance

The Register of the National Estate is a database of places of natural and cultural significance administered by the Australian Heritage Commission. The database alerts planners, decision makers, researchers and the community to heritage places that are important because of their historic or natural values, or because they are important to Indigenous people and their culture. In 1998–99 there were about 1,900 places listed in the Register for their natural values, 9,600 because of their historic importance and about 890 registered for their Indigenous cultural values (for further details see the section *National Estate of Chapter 12, Culture and recreation*).

Considerable legislative and structural reform is underway in relation to the role of the Register of the National Estate and the conservation of heritage in Australia generally. A key development is the likely introduction of a national list of places that are considered to be of exceptional value. It is likely that these places will have their statutory protection strengthened. It is envisaged that places which do not meet this threshold will be protected through the development, accreditation and implementation of heritage standards and the development of an integrated heritage inventory for use at all levels of jurisdiction or interest.

### Expenditure on protection of the environment

Environment protection expenditure is defined as actual expenses incurred by industries, households, the government and non-government organisations to avoid environmental degradation or eliminate part or

all of the effects after degradation has taken place. Typical examples of environment protection activities that incur expenditure include garbage collection services, sewage treatment, air pollution abatement and control technology (e.g. air scrubbers), habitat restoration (e.g. revegetation projects) and research into rare and endangered species.

In Australia, much of the framework to ensure that environmental degradation is prevented, mitigated and restored by organisations or individuals and paid for (at least in part) by these same people or groups, is regulatory or legislative in nature. Other important motivating forces behind expenditure directed towards protecting the environment include market forces (e.g. public image, access to the 'green' market, resource efficiency) and altruism (e.g. expenditure motivated by values, such as stewardship and equity).

Statistics on environment protection expenditure are important because they provide information on national and global progress toward sustainable living. For instance, an environment protection expenditure account can be used to:

- contribute to international reporting and comparisons between nations;
- identify the producers, consumers and financiers of environment protection services and products, and analyse important trends and characteristics;
- classify the emerging 'environment' industry;
- develop links between environment protection expenditure and supporting information, such as environmental policies, regulations and indicators.

Graph 14.17 shows the breakdown of environment protection expenditure in Australia by general government (Commonwealth, State and local government combined), the corporate sector and the household sector, classified into environment protection domains, as defined by the European System for the Collection of Economic Information on the Environment (SERIEE).



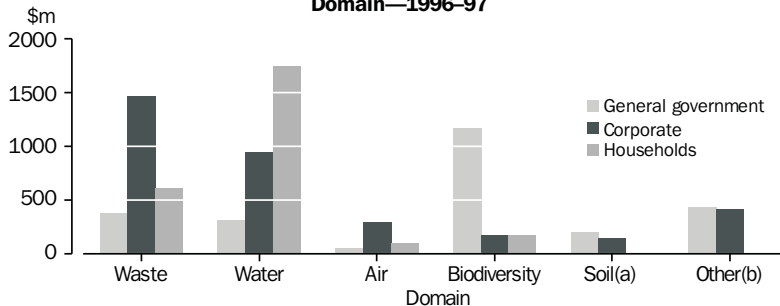
Waste, in the context of the SERIEE domains, refers mainly to the collection and disposal of non-hazardous waste (household and industrial garbage) and hazardous waste (e.g. persistent, toxic, poisonous, or biologically active materials). The water domain is mainly concerned with sewage treatment and other forms of waste water; air includes abating polluting emissions and impacts on climate change. The biodiversity domain accounts for expenditure to protect species, ecosystems and the genetic material they contain. The soils domain also includes protection of ground water (e.g. protection from contamination). The 'other' domain includes expenditure that is not readily classified, together with expenditure on research and development, and on abatement of noise and vibration. Further information is available in *Environment Protection Expenditure, Australia* (4603.0).

Graph 14.17 shows that the breakdown of the expenditure of government, the corporate sector and the household sector varies considerably across

the six domains, reflecting the different roles and responsibilities of each of these sectors under the legislative framework in 1996–97. For example the household sector makes a major contribution to waste water protection through the payment of sewerage charges, the corporate sector spends the most on garbage/waste management activities, while general government is the main contributor to expenditure on protection of biodiversity.

Australian industries, such as agriculture, mining and manufacturing, are responsible for a range of adverse impacts on the environment. Table 14.18 indicates that Australian industries contributed about 35% of total national environment protection expenditure in 1996–97, which was used to prevent or mitigate some of these impacts. In the same year general government and the household sector were each responsible for about 30% of total national environment protection expenditure, with the remaining 5% attributed to specialised producers of environment protection services (e.g. waste disposal businesses).

**14.17 ENVIRONMENT PROTECTION EXPENDITURE, By Domain—1996–97**



(a) Low household expenditure in soil and ground water protection and other environment protection expenditure. (b) Includes noise and vibration abatement, and research and development.

Source: *Environment Protection Expenditure, Australia* (4603.0).

**14.18 NATIONAL ENVIRONMENT PROTECTION EXPENDITURE (EPE), By Industry Groups—1996–97**

	Capital	Current	Total	Industry EPE	National EPE	EPE as a ratio of Industry Gross Value Added(a)
	\$m	\$m	\$m	%	%	%
Agriculture	49	154	203	7	2	5
Manufacturing	418	494	911	30	11	5
Mining	141	216	357	12	4	6
Utilities (electricity and gas)	73	84	158	5	2	7
Service industries	106	1 295	1 402	46	16	2
<b>Total</b>	<b>787</b>	<b>2 243</b>	<b>3 030</b>	<b>100</b>	<b>35</b>	<b>3</b>

(a) Industry Gross Value Added is the market value of goods and services produced by an industry less the costs of goods and services used in the production process.

Source: *Environment Protection Expenditure, Australia* (4603.0).



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## Introduction

**I**nteracting factors such as the opening up of new land, the development of transport facilities and profitable markets, and technical and scientific achievements, have shaped the evolution of Australian agriculture.

Until the late 1950s, agricultural products accounted for more than 80% of the value of Australia's exports. Since then, that proportion has declined markedly as the Australian economy has become increasingly diverse. The quantity and value of production have expanded in the mining, manufacturing and, in recent years, the services sectors. (This decline in importance has not been due to a decline in agricultural activity, as agricultural output has increased over this period.) The direct contribution of agriculture to Gross Domestic Product (GDP) is currently 3%. Australian agriculture is a vital sector occupying a significant place in global rural trade, with wool, beef, wheat, cotton and sugar being particularly important. Australia is also an important source of dairy produce, fruit, rice and flowers.

The major source of statistics on land use, commodity production and livestock numbers in this chapter is the ABS Agricultural Census, conducted each year until 1996–97. Since 1997–98 these data have been collected in the Agricultural Commodity Survey, which replaces the census in four years out of five.

The ABS excludes from the census and the commodity survey those establishments which make only a small contribution to agricultural activity.

While this alteration has resulted in some changes in the counts of numbers of establishments engaged in agricultural activities, the effect on the statistics of production of major commodities is small.

The chapter concludes with an article the development of agriculture over the century.

## The agricultural environment

Australia is a relatively flat continent, with mean elevation just exceeding 200 metres. The dominant feature of the continent is the Great Dividing Range which spans the length of the Eastern Seaboard. There are very few naturally good soils for agriculture. Most are infertile and

shallow, with deficiencies in phosphorus and/or nitrogen. To offset these deficiencies superphosphate and nitrogenous fertilisers are widely used, particularly on pasture and cereal crops. Fragile soil structure and a susceptibility to waterlogging are other common features of Australian soils, while large areas are naturally affected by salt or acidity. These soil characteristics restrict particular agricultural activities or rule out agricultural activity altogether.

With the exception of Antarctica, Australia is the world's driest continent. The wet northern summer is suited to beef cattle grazing inland and the growing of sugar and tropical fruits in coastal areas. The drier summer conditions of southern Australia favour wheat and other dryland cereal farming, sheep grazing and dairy cattle (in the higher rainfall areas) as well as beef cattle. Within regions there is also a high degree of rainfall variability from year to year, which is most pronounced in the arid and semi-arid regions. Rainfall variability often results in lengthy periods without rain. The seasonality and variability of rainfall in Australia require that water be stored, and 70% of the stored water resource (including ground water) is consumed by the agricultural sector. Storage ensures that there are adequate supplies all year round for those agricultural activities requiring a continuous supply. Irrigation has opened up areas of Australia to agricultural activities which otherwise would have not been suitable.

Evaporation is another important element of Australia's environment affecting agricultural production. Hot summers are accompanied by an abundance of sunlight. This combination of climatic variables leads to high rates of evaporation. Areas that have been cleared for crop and pasture production tend to coincide with five to nine months effective rainfall (where rainfall exceeds evaporation) per year. In areas of effective rainfall of more than nine months, generally only higher value crops or tropical crops and fruits are grown, while in areas with effective rainfall of less than five months, cropping is usually restricted to areas that are irrigated.

Since European settlement the vegetation of Australia has altered significantly. In particular, large areas of Australia's forest and woodland vegetation systems have been cleared, predominantly for agricultural activity. The areas that have been altered most are those which have been opened up to cultivation or intensive grazing. Other areas, particularly in the semi-arid

regions where extensive grazing of native grasses occurs, now show signs of returning to timber and scrub.

For more detail see *Chapter 1, Geography and climate*.

## Land used for agriculture

In spite of Australia's harsh environment, agriculture is the most extensive form of land use. At 31 March 1998, the estimated total area of agricultural establishments in Australia was 463.8 million hectares, representing about 60% of the total land area (tables 15.1 and 15.2). The rest of the Australian land area consists of unoccupied land (mainly desert in western and central Australia), Aboriginal land reserves (mainly located in the Northern Territory), forests, mining leases, national parks and urban areas.

Livestock grazing accounts for the largest area of land use in Australian agriculture. This activity has led to the replacement of large areas of native

vegetation with introduced pastures and grasses in the higher rainfall and irrigated areas.

At 31 March 1998, 4.6% of Australia's agricultural land was under crops, with a further 4.9% under sown pastures and grasses. This maintains the trend which has seen about 10% of Australia's agricultural land under cultivation each year since the 1980s. Until this time, the area of land cropped or sown to pastures and grasses had been expanding rapidly. This expansion was facilitated by factors including increased use of fertilisers, improved water supply and reduction in the rabbit population due to myxomatosis.

## Irrigation

Most crops require a minimum amount of annual rainfall to grow successfully without irrigation. The variability in river flow and annual rainfall which are features of the Australian environment means that successful irrigation of crops and pastures is dependent on storage. Ground water supplies are used in areas where the quantity is adequate and the quality is suitable.

### 15.1 AGRICULTURAL LAND USE IN AUSTRALIA

	Area of				Total
	Crops(a)	Sown pastures and grasses	Balance(b)	Area of establishments with agricultural activity	Proportion of Australian land area(c)
	mill. ha	mill. ha	mill. ha	mill. ha	%
31 March					
1993	17.3	29.0	413.8	460.1	59.8
1994	18.0	29.5	421.6	469.1	61.0
1995	17.0	(d)	410.2	463.3	60.2
1996	19.4	17.1	428.7	465.2	60.5
1997	21.1	19.0	422.0	462.2	60.1
1998	21.5	22.8	419.4	463.8	60.3

(a) Pastures and grasses harvested for hay and seed are included in 'sown pastures and grasses'. (b) Includes areas of arid or rugged land held under grazing licences but not always used for grazing, and also variable amounts of fallow land. (c) About 769,203,000 ha. (d) Collected in the Northern Territory only.

Source: AgStats (7117.0); *Agriculture, Australia 1997-98* (7113.0).

### 15.2 AREA OF ESTABLISHMENTS WITH AGRICULTURAL ACTIVITY

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Aust. (incl. ACT)
	mill. ha	mill. ha	mill. ha	mill. ha	mill. ha	mill. ha	mill. ha	mill. ha
31 March								
1993	59.4	12.3	149.5	56.6	110.6	1.8	69.9	460.1
1994	61.2	13.0	152.6	57.3	114.4	2.0	68.6	469.1
1995	60.3	12.7	149.7	56.1	114.0	1.9	68.6	463.3
1996	61.0	12.8	149.7	56.9	114.5	1.9	68.3	465.2
1997	60.9	12.7	149.6	56.2	112.5	1.9	68.3	462.2
1998	60.3	12.7	148.2	57.5	115.8	1.9	67.3	463.8

Source: AgStats (7117.0); *Agriculture, Australia 1997-98* (7113.0).

The area of land irrigated, about 2.4 million hectares in 1998 (see table 15.3), represents less than 1% of the total land used for agriculture. Vegetables, fruit and sugar cane are the most intensively irrigated crops, with 79%, 73% and 48% respectively of their total growing areas sown being irrigated.

Most irrigated land is located within the confines of the Murray–Darling Basin, which covers parts of New South Wales, Victoria, Queensland and South Australia.

### Fertilisers

Most Australian soils are deficient in phosphorus. Because of this and the significant but less widespread deficiency of sulphur in many soils, phosphate fertilisers, particularly single strength superphosphate, account for the bulk of fertiliser use (see table 15.4). Over half of the superphosphate is used on pastures in areas with moderate to good rainfall. Large quantities are also used on cereal crops. Nitrogen deficiency is also generally evident in Australian soils and the use of nitrogenous fertilisers is increasing.

Potassium deficiency is confined mainly to soils in the higher rainfall areas which are intensively cropped or used for irrigated pastures.

### Characteristics of Australian farms

In 1997–98 there were 144,860 establishments with an Estimated Value of Agricultural Operations (EVAO) greater than \$5,000, which were undertaking some agricultural activity. The main activity of the majority of these establishments (138,654) was agricultural. While the remainder were undertaking some form of agricultural activity, their main activity was not in agriculture. Farms engaged in beef farming (31,785), grain/sheep/beef farming (19,229), grain growing (15,289), sheep farming (15,267) and dairy cattle farming (14,010) accounted for the majority of agricultural activities.

Table 15.5 provides information on the numbers and types of establishments undertaking agricultural activity at 31 March 1998.

**15.3 AREA OF CROPS AND PASTURES IRRIGATED—1998**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha
Pastures	380	493	61	71	12	31	—	—	1 048
Cereals	308	23	38	5	2	3	—	—	378
Vegetables for human consumption	16	23	27	11	8	18	—	—	103
All fruits	43	46	28	53	9	3	2	—	184
All other crops	306	12	110	9	4	10	—	—	450
Sugar cane	—	—	199	—	2	—	—	—	201
<b>Total</b>	<b>1 053</b>	<b>597</b>	<b>463</b>	<b>149</b>	<b>37</b>	<b>65</b>	<b>2</b>	<b>—</b>	<b>2 365</b>

Source: *Agriculture, Australia 1997–98* (7113.0).



**15.4 ARTIFICIAL FERTILISERS, Area and Use**

	Area fertilised	Superphosphate used	Nitrogenous fertilisers used	Total all fertilisers used
Year	'000 ha	'000 t	'000 t	'000 t
1990-91	23 627	(a)	(a)	3 239
1991-92	19 517	(a)	(a)	2 678
1992-93	19 702	(a)	(a)	2 761
1993-94	20 529	(a)	(a)	3 000
1994-95	(b)	(b)	(b)	(b)
1995-96	28 415	1 614	880	(c)3 581

(a) Not collected separately. (b) Not collected. (c) Includes 1,087 tonnes of fertilisers other than nitrophosphate and nitrogenous fertilisers.

Source: AgStats (7117.0).

**15.5 ESTABLISHMENTS UNDERTAKING AGRICULTURAL ACTIVITY—At 31 March 1998**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Establishments mainly engaged in agriculture, forestry and fishing industries									
<b>Agriculture</b>									
Plant nurseries	735	321	681	142	180	32	19	4	2 113
Cut flower and flower seed growing	278	243	204	122	141	51	6	0	1 043
Vegetable growing	777	993	1 313	542	536	597	12	1	4 772
Grape growing	908	1 933	121	1 916	351	76	4	0	5 310
Apple and pear growing	250	422	101	124	218	161	0	2	1 279
Stone fruit growing	451	248	95	330	170	13	0	0	1 307
Kiwi fruit growing	40	10	5	0	4	0	0	0	59
Fruit growing n.e.c.	1 926	413	2 024	604	315	48	79	1	5 408
Grain growing	4 287	2 657	2 013	3 785	2 516	30	2	0	15 289
Grain-sheep/beef cattle farming	7 355	3 400	1 792	2 648	3 971	60	2	0	19 230
Sheep-beef cattle farming	3 853	2 302	954	898	518	417	0	24	8 966
Sheep farming	5 383	5 107	667	1 714	1 644	725	0	27	15 267
Beef cattle farming	9 464	7 371	10 894	956	1 841	1 021	213	25	31 786
Dairy cattle farming	2 105	8 088	1 838	775	453	748	2	1	14 010
Poultry farming (meat)	376	193	121	76	64	12	1	0	843
Poultry farming (eggs)	131	145	100	41	83	13	5	2	520
Pig farming	356	177	356	172	122	32	1	0	1 217
Horse farming	600	350	433	80	101	43	2	2	1 613
Deer farming	60	78	39	25	8	15	0	0	225
Livestock farming n.e.c.	173	247	145	31	53	19	1	0	669
Sugar cane growing	473	0	4 676	0	2	0	0	0	5 151
Cotton growing	569	0	542	0	1	0	0	0	1 112
Crop and plant growing n.e.c.	301	427	442	120	79	91	7	1	1 467
Total agriculture	40 852	35 125	29 556	15 101	13 372	4 205	356	90	138 657
Establishments mainly engaged in other industries, but also with some agricultural activity	1 644	1 563	1 395	673	618	277	21	15	6 206
<b>Total establishments undertaking agricultural activity</b>	<b>42 496</b>	<b>36 687</b>	<b>30 951</b>	<b>15 774</b>	<b>13 990</b>	<b>4 482</b>	<b>377</b>	<b>105</b>	<b>144 863</b>

(a) Establishments which could not be classified to an industry because they undertook no agricultural activity during the year ended 31 March 1998.

Source: Agricultural Commodities, Australia (7121.0).

## Employment in agriculture

The number of people employed in agriculture fell by 2% in 1998, to 394,000 persons. The majority of persons employed in agriculture were male (68%). More than 78% of women were married, compared to 67% of men.

Table 15.6 shows the average employment in agriculture and services to agriculture for each of the years 1993 to 1998.

## Gross value of agricultural commodities produced

Table 15.7 shows the gross value of agricultural commodities produced for the years 1991–92 to 1996–97. The values shown are the values of recorded production at the wholesale prices realised in the principal market place. This table also shows the indexes of the gross value of commodities produced at constant prices, which are measures of change in value after the direct effects of price changes have been eliminated.

**15.6 EMPLOYED PERSONS(a) IN AGRICULTURE AND RELATED SERVICES TO AGRICULTURE, Annual Averages**

	Married males	All males	Married females	All females	Persons
	'000	'000	'000	'000	'000
1993	186.7	265.0	100.5	117.3	<b>382.3</b>
1994	180.5	257.6	97.5	118.7	<b>376.3</b>
1995	180.6	259.3	101.5	123.8	<b>383.0</b>
1996	185.1	272.1	99.5	122.1	<b>394.2</b>
1997	190.6	276.7	102.8	126.3	<b>403.0</b>
1998	178.4	268.2	98.3	125.6	<b>394.0</b>

(a) The estimates of employed persons include persons who worked without pay for at least one hour per week in a family business or on a farm (that is, unpaid family helpers). Persons who worked in another industry and in agriculture are classified to the industry of predominant activity.

Source: Unpublished data, Labour Force Survey.

**15.7 AGRICULTURAL COMMODITIES PRODUCED, Gross Value and Index of Values(a)**

Commodity	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
	\$m	\$m	\$m	\$m	\$m	\$m
<b>GROSS VALUE OF COMMODITIES PRODUCED (CURRENT PRICES)</b>						
Crops						
Barley for grain	680.9	801.8	844.9	622.2	1 276.4	1 306.1
Oats for grain	178.3	208.8	147.9	165.8	289.4	226.7
Wheat for grain	2 097.2	2 685.5	2 866.8	2 127.2	4 304.6	4 878.0
Other cereal grains	473.3	340.1	537.5	580.2	764.8	1.0
Sugar cane cut for crushing	602.7	800.9	944.6	1 207.7	1 232.7	1 186.4
Fruit and nuts	1 304.1	1 402.9	1 316.7	1 426.3	1 506.3	1 701.2
Grapes	433.0	395.5	450.1	511.1	708.4	721.5
Vegetables	1 242.4	1 248.6	1 443.7	1 491.6	1 629.8	1 663.0
All other crops(b)	2 853.8	2 853.2	2 963.8	2 999.6	3 716.1	3 689.9
<i>Total crops</i>	<i>9 865.7</i>	<i>10 737.3</i>	<i>11 515.9</i>	<i>11 131.7</i>	<i>15 396.7</i>	<i>16 137.6</i>
Livestock slaughterings and other disposals(c)						
Cattle and calves(d)	3 801.9	3 839.2	4 433.5	4 213.5	3 575.9	3 390.1
Sheep and lambs	460.6	680.8	793.6	833.7	1 035.7	1 038.9
Pigs	658.6	649.5	660.5	630.6	597.8	671.1
Poultry	778.0	833.5	929.3	902.0	948.1	1 053.3
<i>Total livestock slaughterings and other disposals(e)</i>	<i>5 738.1</i>	<i>6 032.7</i>	<i>6 852.9</i>	<i>6 615.7</i>	<i>6 192.7</i>	<i>6 190.1</i>
Livestock products						
Wool	2 979.5	2 568.5	2 449.1	3 317.9	2 548.5	2 621.2
Milk	1 960.0	2 314.4	2 448.0	2 419.1	2 993.5	2 808.9
Eggs	278.1	286.5	233.9	230.6	266.7	274.9
<i>Total livestock products(f)(g)</i>	<i>5 244.0</i>	<i>5 207.5</i>	<i>5 166.7</i>	<i>5 993.7</i>	<i>5 851.4</i>	<i>5 753.6</i>
<b>Total value of agricultural commodities produced(h)</b>	<b>20 861.3</b>	<b>21 990.6</b>	<b>23 547.2</b>	<b>23 750.3</b>	<b>27 451.9</b>	<b>28 089.7</b>
<b>INDEX OF GROSS VALUE OF COMMODITIES PRODUCED (CONSTANT PRICES)</b>						
Crops						
Barley for grain	112.0	133.5	164.9	72.0	144.0	165.6
Oats for grain	103.0	118.1	100.4	56.3	114.3	100.8
Wheat for grain	72.9	101.9	113.9	61.5	115.4	160.0
Other cereal grains	137.9	85.7	116.6	110.6	138.9	146.8
Sugar cane(i)	83.1	108.9	116.5	122.3	130.1	148.8
Fruit and nuts	100.3	117.1	118.8	112.6	138.2	149.2
Grapes	118.5	98.3	112.7	95.2	132.5	118.5
Vegetables	105.0	104.2	115.9	110.5	122.5	122.4
All other crops(b)	124.5	124.4	120.8	101.3	133.6	139.5
<i>Total crops</i>	<i>100.0</i>	<i>111.4</i>	<i>120.0</i>	<i>91.6</i>	<i>127.6</i>	<i>145.4</i>
Livestock slaughterings and other disposals						
Cattle and calves(d)	106.8	108.9	108.8	107.6	104.1	108.3
Sheep and lambs	93.2	94.5	95.6	93.7	93.6	94.3
Pigs	105.9	103.5	108.5	110.7	105.3	102.8
Poultry	107.6	109.9	119.1	119.1	122.9	126.9
<i>Total livestock slaughterings and other disposals(j)</i>	<i>105.5</i>	<i>107.0</i>	<i>108.8</i>	<i>108.1</i>	<i>105.7</i>	<i>108.7</i>
Livestock products						
Wool	80.4	78.2	75.5	66.6	62.2	66.5
Milk	107.5	117.1	129.1	131.1	139.2	144.1
Eggs	89.6	94.2	89.2	86.7	86.1	86.8
<i>Total livestock products(k)</i>	<i>86.8</i>	<i>87.6</i>	<i>88.2</i>	<i>81.9</i>	<i>80.6</i>	<i>84.8</i>
<b>Total agricultural commodities produced</b>	<b>97.0</b>	<b>102.4</b>	<b>106.6</b>	<b>92.5</b>	<b>106.6</b>	<b>116.2</b>

(a) Constant prices are weighted by average unit values for 1989-90. (b) Includes pastures and grasses. Excludes crops for green feed or silage. (c) Includes net exports of livestock. (d) Includes dairy cattle slaughtered. (e) Includes goat slaughterings and Tasmanian pigs and poultry. (f) Includes honey and beeswax. (g) Excludes Northern Territory milk and eggs. (h) Includes pigs, poultry, milk and eggs in the Northern Territory. (i) Sugar cane cut for crushing and planting. (j) Component series based on carcass weight. Includes goat slaughterings. (k) Includes honey, beeswax and goat products.

Source: Value of Agricultural Commodities Produced, Australia (7503.0); Agriculture, Australia 1996-97 (7113.0).

## Financial statistics of farm businesses

Estimates of selected financial aggregates of farm businesses are shown in tables and graphs 15.8 to 15.14. The estimates have been derived from the Agricultural Finance Survey, conducted annually since 1986–87.

## Turnover

Turnover (all gross proceeds received by the business during the year from the sale of crops, livestock, livestock products and other miscellaneous revenue) is a good guide to the level of farm business activity. The average turnover per farm business increased by 3% to \$263,000 during 1997–98. However, total turnover by all Australian farm businesses for 1997–98 was not significantly different from that recorded in 1996–97 (table 15.10).

**15.8 FARM BUSINESSES, Selected Financial Aggregates**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m
Sales from crops	8 594.6	9 369.5	9 804.2	13 159.6	13 581.2	13 493.1
Sales from livestock	5 431.1	6 232.5	6 279.1	6 339.7	5 964.7	5 922.0
Sales from livestock products	4 770.9	4 637.3	5 596.3	4 975.1	5 403.3	5 556.5
Turnover	20 068.2	21 694.3	23 516.3	26 724.9	27 122.3	27 300.1
Purchases and selected expenses	11 392.6	12 541.1	13 517.0	14 948.6	15 692.3	15 472.4
Value added(a)	9 099.5	10 598.4	9 768.1	11 185.3	10 797.4	12 034.4
Adjusted(b) value added(a)	7 753.3	9 178.5	8 234.3	9 552.5	9 103.2	10 145.0
Gross operating surplus(a)	5 832.7	7 081.2	6 006.0	7 176.6	6 588.3	7 608.1
Interest paid	1 499.2	1 302.0	1 508.9	1 666.7	1 719.9	1 595.1
Cash operating surplus(c)	4 083.2	4 433.3	4 835.7	6 429.3	5 906.3	6 091.7
Net capital expenditure	1 660.2	1 945.0	2 090.8	2 307.9	2 480.7	2 624.7
Gross indebtedness	15 390.5	15 921.7	18 267.7	19 592.7	20 464.2	21 630.8

(a) Includes an estimate for the increase (or decrease) in the value of livestock. (b) The estimate of value added less the estimates of rates and taxes, insurance payments and other expenses. (c) Excludes an estimate for the increase (or decrease) in the value of livestock.

Source: *Agricultural Industries, Financial Statistics, Australia (7507.0)*; *Agriculture, Australia (7113.0)*.

**15.9 FARM BUSINESSES, Selected Financial Aggregates by State—1997–98**

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Sales from crops	3 681.5	1 800.2	3 463.1	1 655.7	2 649.8	231.8	<b>13 493.1</b>
Sales from livestock	1 660.6	936.3	1 823.6	562.1	642.2	148.3	<b>5 922.0</b>
Sales from livestock products	1 629.9	2 010.6	567.0	440.1	698.2	207.9	<b>5 556.5</b>
Turnover	7 559.3	5 126.9	6 389.5	2 881.9	4 436.2	726.3	<b>27 300.1</b>
Purchases and selected expenses	4 319.0	2 918.4	3 544.6	1 543.3	2 617.2	409.7	<b>15 472.4</b>
Value added(b)	3 099.7	1 946.6	3 350.5	1 403.1	1 862.0	304.2	<b>12 034.4</b>
Adjusted(c) value added(b)	2 510.2	1 618.0	2 954.0	1 191.1	1 566.7	250.1	<b>10 145.0</b>
Gross operating surplus(b)	1 858.6	1 137.9	2 231.1	941.5	1 278.9	140.8	<b>7 608.1</b>
Interest paid	437.2	282.2	384.7	186.9	244.9	53.2	<b>1 595.1</b>
Cash operating surplus(d)	1 648.6	1 159.8	1 399.1	720.2	1 049.3	108.5	<b>6 091.7</b>
Net capital expenditure	581.5	409.7	635.2	343.6	571.5	67.8	<b>2 624.7</b>
Gross indebtedness	5 696.1	3 581.3	5 864.6	2 148.0	3 637.8	602.7	<b>21 630.8</b>

(a) Includes the Northern Territory and the Australian Capital Territory. (b) Includes an estimate for the increase (or decrease) in the value of livestock. (c) The estimate of value added less the estimates of rates and taxes, insurance payments and other expenses. (d) Excludes an estimate for the increase (or decrease) in the value of livestock.

Source: *Agricultural Industries, Financial Statistics, Australia (7507.0)*; unpublished data.

In 1997–98, 25,000 or 24% of Australian farm businesses had a turnover of \$300,000 or more, and contributed 68% of the total turnover of all Australian farms. The average turnover was \$739,000 and the average cash operating surplus was \$165,000.

At the other end of the scale, 22,000 farms (21%) had a turnover of less than \$50,000. These farm businesses contributed only 2% of the total turnover, at an average of \$28,000. These farms had an average cash operating loss of \$2,000 per farm.

In 1997–98, the farm business profit margin (the ratio of cash operating surplus to turnover) was 22%, the same as in 1996–97 (graph 15.11).

#### 15.10 FARM BUSINESSES, By Size of Turnover

Size of turnover	Number of farm businesses				Total turnover			
	1994–95	1995–96	1996–97	1997–98	1994–95	1995–96	1996–97	1997–98
	'000	'000	'000	'000	\$m	\$m	\$m	\$m
Less than \$50 000	22.8	22.7	20.4	20.5	696.1	613.6	618.6	620.9
\$50 000 to \$99 999	22.2	20.0	21.4	20.2	1 678.1	1 560.1	1 609.0	1 562.6
\$100 000 to \$149 999	17.1	15.9	13.8	13.3	2 142.7	1 991.0	1 787.3	1 666.2
\$150 000 to \$199 999	10.9	11.1	12.0	11.6	1 928.5	1 957.3	2 170.9	2 064.9
\$200 000 to \$249 999	8.4	9.2	9.7	6.7	1 936.6	2 053.5	2 184.8	1 514.8
\$250 000 to \$299 999	6.6	6.1	6.0	5.0	1 821.7	1 629.2	1 699.8	1 398.2
\$300 000 and over	19.2	23.6	22.9	25.0	13 312.6	16 920.2	17 051.9	18 472.5
<b>Total</b>	<b>107.3</b>	<b>108.4</b>	<b>106.1</b>	<b>104.3</b>	<b>23 516.3</b>	<b>26 724.9</b>	<b>27 122.3</b>	<b>27 300.1</b>

Source: *Agricultural Industries, Financial Statistics, Australia (7507.0)*; *Agriculture, Australia (7113.0)*.

#### 15.11 AUSTRALIAN FARM BUSINESSES, Profit margins(a)



(a) Profit margin is derived before allowing for any drawings taken by directors of unincorporated businesses.

Source: *Agricultural Industries, Financial Statistics, Australia (7507.0)*; *Agriculture, Australia (7113.0)*.

### Gross indebtedness

Australian farm businesses owed a total of \$21.6b at 30 June 1998 (table 15.12), a 5% increase on 1996–97. The aggregate debt has risen steadily from \$11.5b in 1986–87 when the current series of surveys began. The average gross indebtedness at end June 1998 was \$208,000 per farm business. About 27% of farm businesses owed more than \$200,000. On the other hand, 26% of farm businesses were debt free at the end of June 1998. The total interest bill for Australian farm businesses, at \$1.6b, was 7% less than in 1996–97. The average interest payment per farm business was \$15,000 in 1997–98.

Graph 15.13 shows that the average debt to asset ratio for agricultural businesses has been trending down slowly. Graph 15.14 shows an increase in the average interest coverage of agricultural businesses, from 4.1 times in 1996–97 to 4.4 times

in 1997–98, reflecting the impact of a 3% increase in cash operating surplus and a 7% fall in interest paid.

**15.12 AUSTRALIAN FARM BUSINESSES, Aggregate and Average Gross Indebtedness**

	Gross indebtedness	
	Aggregate	Average per farm business
30 June	\$m	\$
1993	15 390.5	145 100
1994	15 921.7	148 100
1995	18 267.7	170 300
1996	19 592.7	180 700
1997	20 464.2	192 900
1998	21 630.8	208 000

Source: *Agricultural Industries, Financial Statistics, Australia* (7507.0); *Agriculture, Australia* (7113.0).

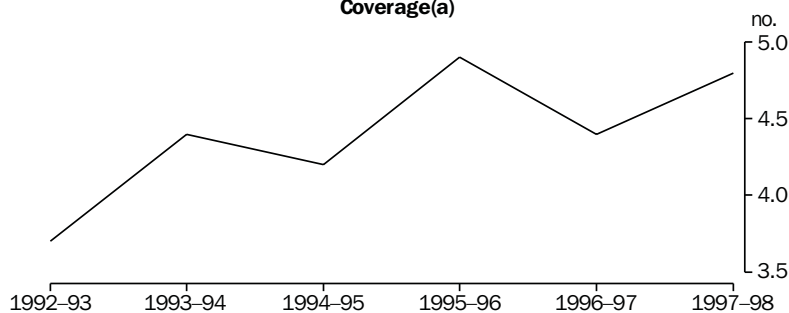
**15.13 AUSTRALIAN FARM BUSINESSES, Average Debt to Asset Ratio(a)**



(a) The debt to asset ratio is the total value of assets at 30 June divided by gross indebtedness at 30 June.

Source: *Agricultural industries, Financial Statistics, Australia* (7507.0); *Agriculture, Australia* (7113.0).

**15.14 AUSTRALIAN FARM BUSINESSES, Average Interest Coverage(a)**



(a) The interest coverage is the total of cash operating surplus and interest paid divided by interest paid at 30 June.

Source: *Agricultural Industries, Financial Statistics, Australia (7507.0)*; *Agriculture, Australia (7113.0)*.

## Crops

Table 15.15 shows the area of crops in the States and Territories of Australia since 1870-71, and table 15.16 is a summary of the area, production and gross value of the principal crops in Australia in recent years.

## Cereal grains

In Australia, cereals are divided into autumn-winter-spring growing (winter cereals) and spring-summer-autumn growing (summer

cereals). Winter cereals such as wheat, oats, barley and rye are usually grown in rotation with some form of pasture such as subterranean clover, medics or lucerne. In recent years, alternative winter crops such as canola, field peas and lupins have been introduced to cereal rotation in areas where they had not previously been grown. Rice, maize and sorghum are summer cereals, with the latter being grown in association with winter cereals in some areas. In northern Australia there are two rice growing seasons.

**15.15 AREA OF CROPS**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Year	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha	'000 ha
1870-71	156	280	21	235	22	64	—	—	868
1880-81	245	627	46	846	26	57	—	—	1 846
1890-91	345	822	91	847	28	64	—	—	2 197
1900-01	990	1 260	185	959	81	91	—	—	3 567
1910-11	1 370	1 599	270	1 112	346	116	—	—	4 813
1920-21	1 807	1 817	316	1 308	730	120	—	1	6 099
1930-31	2 756	2 718	463	2 196	1 939	108	1	2	10 184
1940-41	2 580	1 808	702	1 722	1 630	103	—	2	8 546
1949-50	2 295	1 881	832	1 518	1 780	114	—	4	8 424
1959-60	2 888	1 949	1 184	1 780	2 628	130	1	3	10 564
1969-70	4 999	2 212	2 208	2 290	3 912	98	6	2	15 728
1979-80	5 243	2 243	2 334	2 771	5 281	79	2	1	17 954
1990-91	4 073	2 063	2 872	2 933	5 359	75	6	—	17 382
1991-92	3 846	2 039	2 302	2 920	5 216	76	5	—	16 404
1992-93	3 906	2 258	2 316	3 073	5 668	73	4	1	17 297
1993-94	4 209	2 317	2 394	2 940	6 100	78	5	—	18 043
1994-95	3 432	2 296	2 056	2 991	6 182	77	4	—	17 040
1995-96	4 757	2 439	2 495	3 219	6 419	75	4	—	19 409
1996-97	5 589	2 552	2 685	3 279	6 950	73	5	—	21 133
1997-98	5 648	2 565	2 682	3 290	7 328	78	4	—	21 595

Source: *AgStats (7117.0)*; *Agriculture, Australia 1997-98 (7113.0)*.

**15.16 SELECTED CROPS, Area, Production and Gross Value**

Crop	Area			Production			Gross value		
	1995–96	1996–97	1997–98	1995–96	1996–97	1997–98	1995–96	1996–97	1997–98
	'000 ha	'000 ha	'000 ha	'000 t	'000 t	'000 t	\$m	\$m	\$m
Cereals for grain									
Barley	3 111	3 367	3 521	5 823	6 696	6 482	1 276	1 306	1 068
Grain sorghum	770	544	507	1 592	1 425	1 081	320	257	183
Maize	56	67	57	311	398	272	69	80	55
Oats	1 136	1 052	937	1 875	1 653	1 634	289	227	223
Rice	137	152	147	966	1 255	1 324	226	310	392
Wheat	9 221	10 936	10 439	16 504	22 924	19 224	4 305	4 878	3 802
Lupins for grain	1 323	1 259	1 425	1 559	1 522	1 561	279	250	306
Crops for hay									
Oats	346	n.a.	n.a.	1 370	n.a.	n.a.	169	n.a.	n.a.
Wheat	22	n.a.	n.a.	62	n.a.	n.a.	8	n.a.	n.a.
Sugar cane cut for crushing	377	390	415	35 889	38 633	39 531	1 169	1 186	1 248
Tobacco	3	3	3	8	9	8	46	54	46
Seed cotton	315	378	381	923	1 485	1 518	1 003	1 342	1 360
Peanuts (in shell)	21	24	19	38	47	32	28	35	22
Soybean	24	39	32	45	74	54	18	31	22
Canola	377	407	697	557	623	855	208	239	328
Sunflower	82	139	90	68	143	84	25	47	34
Orchard fruit									
Oranges	n.a.	n.a.	n.a.	442	523	500	220	264	254
Apples	n.a.	n.a.	n.a.	280	353	309	305	393	298
Pears (excluding Nashi)	n.a.	n.a.	n.a.	156	168	153	91	106	109
Peaches	n.a.	n.a.	n.a.	60	72	65	50	60	54
Other fruit									
Bananas	9	10	10	220	200	223	225	217	230
Pineapples	3	3	3	128	123	123	36	39	37
Grapes	81	90	99	1 087	943	1 112	714	722	1 000
Vegetables									
Carrots	8	7	7	250	257	267	136	142	150
Potatoes	42	41	43	1 308	1 286	1 372	414	449	515
Tomatoes	9	9	8	371	393	380	176	177	173
<b>Total all crops (excluding pastures and grasses)</b>	<b>19 409</b>	<b>21 133</b>	<b>21 595</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>14 603</b>	<b>15 659</b>	<b>15 606</b>

Source: AgStats (7117.0); Value of Agricultural Commodities Produced, Australia (7503.0); Agriculture, Australia (7113.0).

**Wheat**

Wheat is Australia's largest crop. It is produced in all States but primarily on the mainland in a narrow crescent known as the wheat belt. Inland of the Great Dividing Range, the wheat belt stretches in a curve from central Queensland through New South Wales, Victoria and southern South Australia. In Western Australia, the wheat belt continues around the south-west of the State and some way north, along the western side of the continent (see map 15.19).

Preliminary estimates for the 1998–99 season show that the volume of wheat production increased by 10% over the 1997–98 season (tables 15.17 and 15.18). Record productions were recorded in Western Australia (8.1 million tonnes) and South Australia (3.2 million tonnes). Queensland also recorded a significant increase, up 39% to 1.9 million tonnes. The largest wheat crop ever recorded occurred in 1996–97.



**15.17 WHEAT, Area, Production and Receivals**

Year	Area(a)		Production(a)		Australian Wheat Board receivals
	For grain	All purposes(b)	Grain	Gross value	
	'000 ha	'000 ha	'000 t	\$m	'000 t
1992-93	8 275	(b)8 296	14 739	2 685	12 173
1993-94	8 383	(b)8 400	16 479	2 867	13 811
1994-95	7 891	(b)7 927	8 961	2 127	6 114
1995-96	9 221	9 243	16 504	4 305	12 807
1996-97	10 936	n.a.	22 924	4 878	20 082
1997-98	10 439	n.a.	19 224	3 802	n.a.
1998-99p	11 233	n.a.	21 222	n.a.	n.a.

(a) Area and production data relate to the year ending 31 March. (b) Excludes wheat for hay for all States except New South Wales.

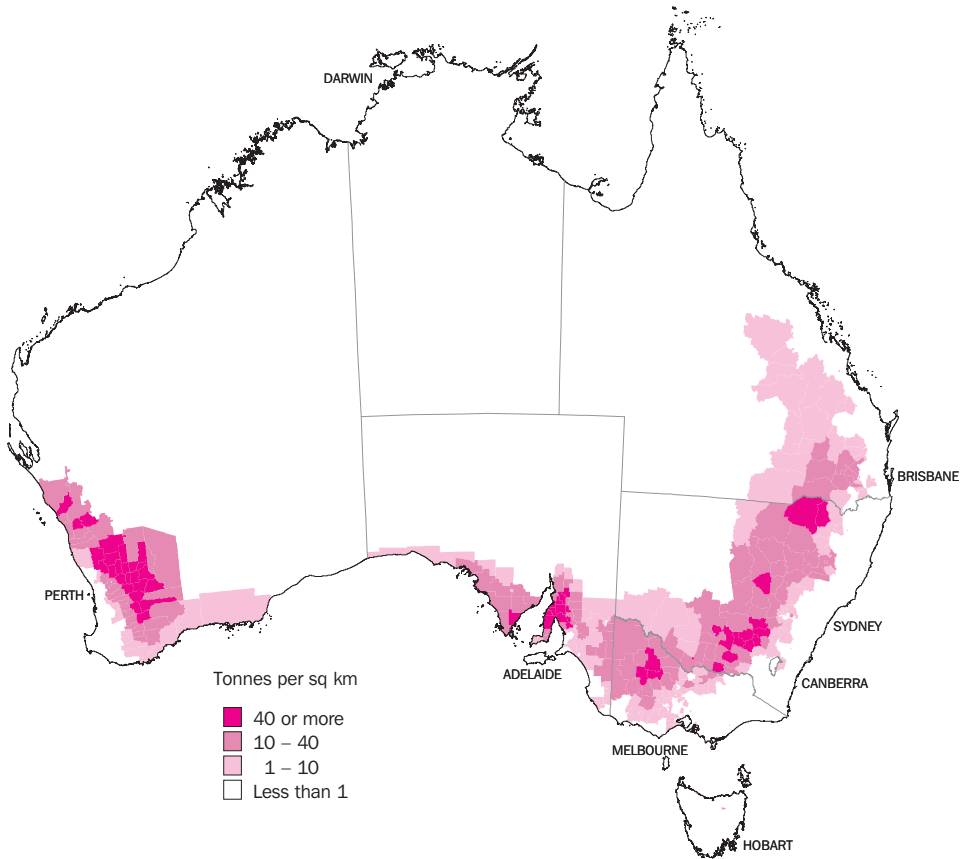
Source: Value of Agricultural Commodities Produced, Australia (7503.0); Principal Agricultural Commodities, Australia, Preliminary, 1998-99 (7111.0); Value of Principal Agricultural Commodities Produced, Australia, Preliminary, 1997-98 (7501.0); Agriculture, Australia (7113.0).

**15.18 WHEAT FOR GRAIN, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha)							
1993-94	1 978	780	556	1 216	3 852	2	<b>8 383</b>
1994-95	1 424	822	401	1 395	3 848	1	<b>7 891</b>
1995-96	2 328	853	627	1 519	3 892	1	<b>9 221</b>
1996-97	3 192	963	980	1 535	4 264	2	<b>10 936</b>
1997-98	2 936	857	999	1 438	4 205	3	<b>10 439</b>
1998-99p	3 006	971	1 120	1 696	4 438	3	<b>11 233</b>
PRODUCTION ('000 t)							
1993-94	5 086	222	555	2 121	6 689	5	<b>16 479</b>
1994-95	875	934	225	1 487	5 438	3	<b>8 961</b>
1995-96	4 508	1 921	519	2 724	6 827	4	<b>16 504</b>
1996-97	8 363	2 262	1 980	2 795	7 516	8	<b>22 924</b>
1997-98	5 906	1 503	1 389	2 689	7 725	12	<b>19 224</b>
1998-99p	6 396	1 492	1 935	3 222	8 063	13	<b>21 122</b>

Source: AgStats (7117.0); Principal Agricultural Commodities, Australia, Preliminary, 1998-99 (7111.0).

## 15.19 WHEAT FOR GRAIN, Production—1996–97(a)



(a) This map has been generated using small area Agricultural Census data for 1996–97.

Source: AgStats (7117.0).

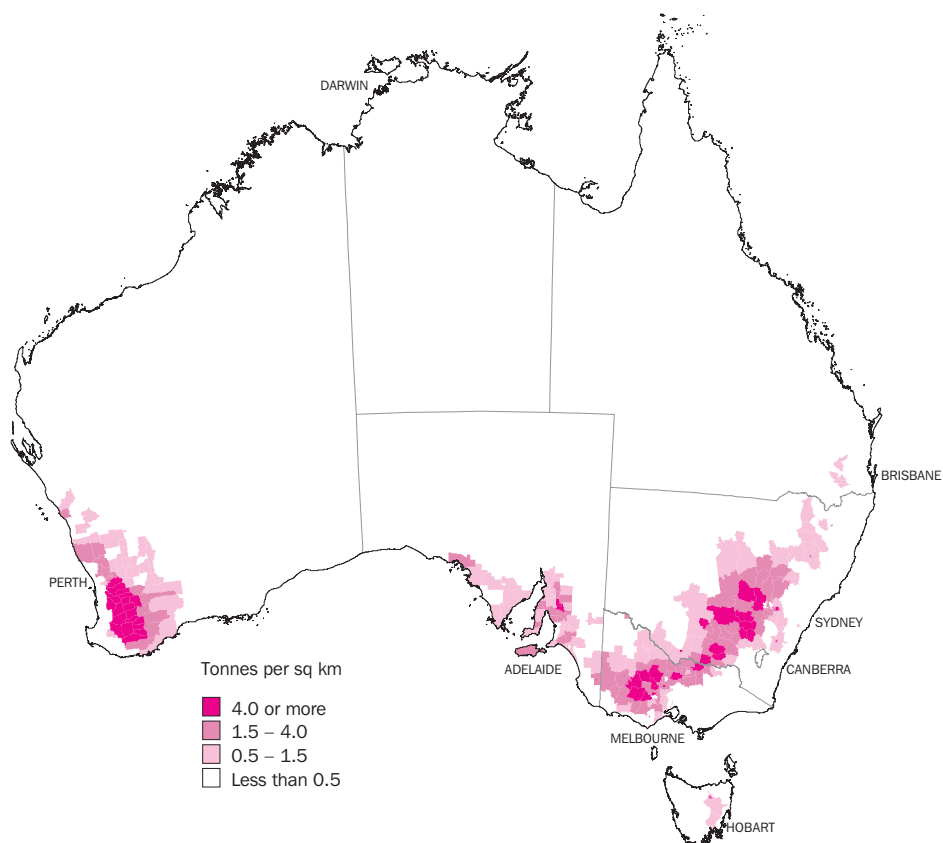
## Oats

Oats are traditionally grown in moist, temperate regions. However, improved varieties and management practices have enabled oats to be grown over a wide range of soil and climatic conditions. They have a high feed value and produce a greater bulk of growth than other winter cereals; they need less cultivation and respond well to superphosphate and nitrogen. Oats have two main uses: as a grain crop, and as a fodder crop (following sowing, fallow or rough sowing into stubble or clover pastures). Fodder crops can either be grazed and then harvested for grain after removal of livestock, or else mown and baled or cut for chaff.

Map 15.20 shows the production of oats for grain in Australia in 1996–97.

The 1997–98 production of oats for grain was slightly lower than the 1996–97 harvest (table 15.21). A significant fall in NSW, down 20% to 488,000 tonnes, was offset by increases in Victoria, up 21% to 369,000 tonnes, and in Western Australia, up 9% to 596,000 tonnes. Preliminary estimates for 1998–99 show that production of oats for grain increased 15% over the previous year, with New South Wales (up 47%) the biggest contributor to the increase.

## 15.20 OATS FOR GRAIN, Production—1996–97(a)



(a) This map has been generated using small area Agricultural Census data for 1996–97.

Source: AgStats (7117.0).

## 15.21 OATS FOR GRAIN, Area and Production

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha)							
1993–94	369	186	16	101	268	7	947
1994–95	375	148	14	95	256	8	897
1995–96	505	187	14	120	300	10	1 136
1996–97	393	175	39	121	316	8	1 052
1997–98	325	172	16	111	305	8	936
1998–99p	384	199	15	113	228	8	947
PRODUCTION ('000 t)							
1993–94	618	362	8	135	511	13	1 647
1994–95	197	201	3	87	425	11	924
1995–96r	711	392	7	162	585	18	1 875
1996–97	607	304	26	156	546	14	1 653
1997–98	488	369	13	153	596	15	1 634
1998–99p	716	475	16	177	476	14	1 874

Source: AgStats (7117.0); Principal Agricultural Commodities, Australia, Preliminary, 1998–99 (7111.0).

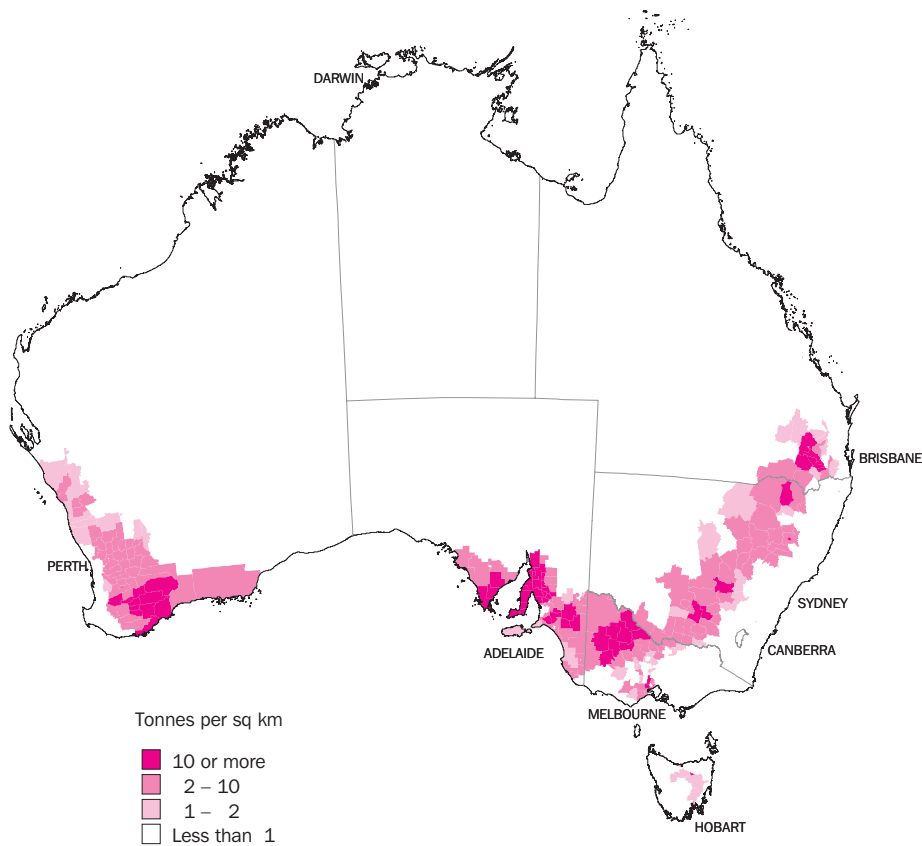
### Barley

This cereal contains two main groups of varieties, 2-row and 6-row. The former is generally, but not exclusively, preferred for malting purposes. Barley is grown principally as a grain crop, although in some areas it is used as a fodder crop for grazing, with grain being subsequently harvested if conditions are suitable. It is often grown as a rotation crop with wheat, oats and pasture. When sown for fodder, sowing may take place either early or late in the season, as barley has a short growing period. It may therefore provide grazing or fodder supplies when other sources are not available. Barley grain may be

crushed to meal for stock or sold for malting. Map 15.22 shows the production of barley for grain in Australia in 1996–97.

Barley production levels in 1997–98 were below those of the previous season despite increased plantings. Unfavourable conditions experienced in the eastern States resulted in low yields in those States, dropping the overall production (table 15.23). Preliminary estimates for 1998–99 show a continued decline in production, down 7% to 6.0 million tonnes. Western Australia contributed most of the fall, down 27% to 1.4 million tonnes.

15.22 BARLEY FOR GRAIN, Production—1996–97(a)



(a) This map has been generated using small area Agricultural Census data for 1996–97.  
Source: AgStats (7117.0).

**15.23 BARLEY FOR GRAIN, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha)							
1993-94	623	639	232	1 115	799	15	<b>3 424</b>
1994-95	410	492	93	882	579	14	<b>2 470</b>
1995-96	593	628	168	964	745	14	<b>3 111</b>
1996-97	668	585	180	1 009	909	15	<b>3 367</b>
1997-98	701	618	135	1 017	1 036	13	<b>3 521</b>
1998-99p	628	569	166	1 011	779	10	<b>3 163</b>
PRODUCTION ('000 t)							
1993-94	1 357	1 386	261	2 242	1 381	41	<b>6 668</b>
1994-95	291	448	73	1 159	915	27	<b>2 913</b>
1995-96	1 074	1 342	195	1 851	1 323	38	<b>6 668</b>
1996-97	1 483	1 189	429	1 923	1 635	35	<b>6 696</b>
1997-98	1 365	928	205	2 027	1 926	31	<b>6 482</b>
1998-99p	1 218	853	336	2 169	1 405	29	<b>6 010</b>

Source: AgStats (7117.0); Principal Agricultural Commodities, Australia, Preliminary, 1998-99 (7111.0).

**Grain sorghum**

The sorghums are summer growing crops which are used in a number of ways: grain sorghum for grain, sweet or fodder sorghum, sudan grass and, more recently, columbus grass for silage, green feed and grazing; and broom millet for brooms and brushware.

Grain sorghum has been grown extensively only in the last two decades, with Queensland producing around 64% of the harvest (table 15.24). Rapid increases in production have resulted in a substantial increase in exports over this period. The grain is used primarily as stockfeed and is an important source for supplementing other coarse grains for this purpose.

**15.24 GRAIN SORGHUM, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha)							
1992-93	118	—	308	—	—	—	<b>427</b>
1993-94	99	—	399	(b)	—	—	<b>499</b>
1994-95	161	6	519	(b)	—	(b)	<b>687</b>
1995-96	171	2	597	(b)	—	(b)	<b>770</b>
1996-97	117	1	424	—	1	(b)	<b>544</b>
1997-98	123	3	379	—	1	(b)	<b>507</b>
PRODUCTION ('000 t)							
1992-93	229	—	315	—	2	—	<b>548</b>
1993-94	228	—	852	(b)	—	(b)	<b>1 084</b>
1994-95	347	8	916	(b)	2	(b)	<b>1 273</b>
1995-96	472	4	1 116	(b)	0	(b)	<b>1 592</b>
1996-97	417	3	1 003	—	2	(b)	<b>1 425</b>
1997-98	382	6	691	—	2	(b)	<b>1 081</b>

(a) Includes the Northern Territory. (b) Not collected.

Source: AgStats (7117.0); Agricultural Commodities, Australia, 1997-98 (7121.0).

## Maize

Like sorghum, maize is a summer cereal demanding specific soil and climatic conditions. Maize for grain is almost entirely confined to the south-east regions and the Atherton Tablelands of Queensland; and the north coast, northern slopes and tablelands and the Murrumbidgee Irrigation Area in New South Wales. Small amounts are grown in all States, except South Australia, for green feed and silage, particularly in association with the dairy industry.

In 1997–98, maize for grain production fell 32% (table 15.25).

## Rice

Rice was first grown commercially in 1924–25 in the Murrumbidgee Irrigation Area, one of three irrigation areas in southern New South Wales where rice is now produced. Nearly all of Australia's rice is grown in New South Wales.

The rice harvest in 1997–98 shows a 6% increase in production over 1996–97 (table 15.26).

**15.25 MAIZE FOR GRAIN, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha)							
1992–93	16	—	27	(b)	2	(b)	<b>45</b>
1993–94	14	—	28	(b)	2	(b)	<b>44</b>
1994–95	21	1	27	(b)	2	(b)	<b>50</b>
1995–96	24	1	31	(b)	—	(b)	<b>56</b>
1996–97	31	1	34	—	1	—	<b>67</b>
1997–98	22	1	34	—	—	—	<b>57</b>
PRODUCTION ('000 t)							
1992–93	108	3	75	(b)	13	(b)	<b>199</b>
1993–94	100	2	87	(b)	15	(b)	<b>204</b>
1994–95	145	5	80	(b)	11	(b)	<b>242</b>
1995–96	190	7	114	(b)	1	(b)	<b>311</b>
1996–97	256	7	130	—	5	—	<b>398</b>
1997–98	161	10	97	—	3	—	<b>272</b>

(a) Includes the Northern Territory. (b) Not collected.

Source: AgStats (7117.0); *Agricultural Commodities, Australia, 1997–98* (7121.0).

**15.26 RICE FOR GRAIN, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
AREA ('000 ha)							
1992–93	105	(b)	2	(b)	(b)	(b)	<b>106</b>
1993–94	125	(b)	(b)	(b)	(b)	(b)	<b>125</b>
1994–95	119	(b)	(b)	(b)	(b)	(b)	<b>119</b>
1995–96	136	(b)	(b)	(b)	(b)	(b)	<b>137</b>
1996–97	151	1	(b)	(b)	(b)	(b)	<b>152</b>
1997–98	146	1	(b)	(b)	(b)	(b)	<b>147</b>
PRODUCTION ('000 t)							
1992–93	846	(b)	12	(b)	(b)	(b)	<b>858</b>
1993–94	1 042	(b)	(b)	(b)	(b)	(b)	<b>1 042</b>
1994–95	1 016	(b)	(b)	(b)	(b)	(b)	<b>1 016</b>
1995–96	965	(b)	(b)	(b)	(b)	(b)	<b>966</b>
1996–97	1 248	6	(b)	(b)	(b)	(b)	<b>1 255</b>
1997–98	1 320	4	(b)	(b)	(b)	(b)	<b>1 324</b>

(a) Includes the Northern Territory. (b) Not collected.

Source: AgStats (7117.0); *Agricultural Commodities, Australia, 1997–98* (7121.0).

## Vegetables

The area sown to vegetables reached a peak of over 200,000 hectares in 1945. It remained static at around 109,000 hectares from the mid-1970s to the mid-1980s, then increased toward the end of the decade, peaking in 1995–96 (table 15.27). Yields from most vegetable crops have continued

to increase due to development of genetically improved varieties for increased yields, greater use of irrigation and better control of disease and insect pests.

In 1997–98, potatoes were the largest vegetable crop in terms of both area and production (tables 15.27 and 15.28).

### 15.27 SELECTED VEGETABLES FOR HUMAN CONSUMPTION, Area

Year	French and runner beans '000 ha	Cabbages '000 ha	Carrots '000 ha	Cauliflowers '000 ha	Onions '000 ha	Green peas '000 ha	Potatoes(a) '000 ha	Tomatoes '000 ha	Other '000 ha	Total vegetables '000 ha
1992–93	6.7	2.1	4.9	4.0	4.4	9.2	38.8	8.6	39.0	<b>117.7</b>
1993–94	6.5	2.0	5.4	3.7	5.2	10.5	40.3	8.9	42.8	<b>125.3</b>
1994–95	6.1	2.1	6.9	3.7	5.2	9.8	37.6	8.7	49.0	<b>129.1</b>
1995–96	7.1	2.2	7.6	4.0	5.5	8.2	41.8	8.6	46.9	<b>131.4</b>
1996–97	7.9	1.9	7.0	4.0	4.8	9.3	41.1	8.8	44.9	<b>129.7</b>
1997–98	6.6	1.8	7.1	4.0	5.6	7.0	42.6	8.0	47.9	<b>130.6</b>

(a) Excludes potatoes for seed.

Source: AgStats (7117.0); *Agricultural Commodities, Australia, 1997–98* (7121.0).

### 15.28 SELECTED VEGETABLES FOR HUMAN CONSUMPTION, Production

Year	French and runner beans '000 t	Cabbages '000 t	Carrots '000 t	Cauliflowers '000 t	Onions '000 t	Green peas (pod weight) '000 t	Potatoes(a) '000 t	Tomatoes '000 t
1992–93	32.0	69.5	169.5	80.2	167.9	79.6	1 129.2	290.8
1993–94	31.0	64.5	194.8	75.2	213.2	97.2	1 184.7	327.2
1994–95	29.4	70.8	238.5	66.1	200.4	97.9	1 122.4	340.0
1995–96	32.0	69.4	249.9	71.1	244.5	80.8	1 308.1	370.9
1996–97	37.6	60.4	257.4	64.4	196.5	94.2	1 286.1	393.1
1997–98	35.6	58.1	266.5	64.8	218.9	76.0	1 371.6	380.1

(a) Excludes potatoes for seed.

Source: AgStats (7117.0); *Agricultural Commodities, Australia* (7121.0).

## Fruit (excluding grapes)

A wide variety of fruit is grown in Australia, ranging from pineapples, mangoes and papaws in the tropics to pome, stone and berry fruits in temperate regions. Table 15.29 shows the number of trees for the main types of orchard fruit, and the area under cultivation for bananas and pineapples.

The principal fruit crops in Australia are apples, oranges and bananas. However, some other fruit types have experienced considerable growth in recent years. These include mandarins, kiwi fruit and strawberries. The most significant crops in terms of gross value of production are apples, oranges and bananas. In 1997–98 the value of the banana crop increased by 6%, while the value of the orange crop remained steady and that of the apple crop fell by 24% (table 15.30).

**15.29 SELECTED FRUIT, Number of Trees(a), Area**

Year	Orchard fruit				Area of selected tropical fruits		Total area of fruit (excluding grapes)
	Apples	Oranges	Pears	Peaches	Bananas	Pineapples	
	'000 trees	'000 trees	'000 trees	'000 trees	ha	ha	ha
1992–93	7 321	7 797	1 531	2 214	10 520	5 854	<b>123 066</b>
1993–94	7 777	8 062	1 610	2 502	10 687	5 870	<b>132 419</b>
1994–95	7 989	7 684	1 508	2 396	9 807	5 225	<b>128 258</b>
1995–96	8 543	7 701	1 543	2 571	10 815	4 697	<b>133 461</b>
1996–97	9 282	7 827	1 576	2 975	11 613	4 634	<b>137 086</b>
1997–98	9 658	7 788	1 540	3 007	12 186	4 844	<b>144 082</b>

(a) Includes trees less than six years old.

Source: AgStats (7117.0); *Agricultural Commodities, Australia 1997–98* (7121.0).

**15.30 SELECTED FRUIT, Quantity and Value of Production**

Year	Apples	Apricots	Bananas	Cherries	Oranges	Peaches	Pears(a)	Pineapples	Plums and prunes
QUANTITY OF PRODUCTION ('000 t)									
1990–91	288.7	25.2	165.1	5.4	453.3	57.9	156.7	126.0	19.6
1991–92	316.1	31.8	176.9	4.8	469.9	61.7	175.7	133.3	21.6
1992–93	327.8	29.5	213.9	5.0	616.5	62.6	161.4	142.4	25.0
1993–94	306.9	21.2	219.2	6.4	582.1	59.4	155.2	157.4	26.1
1994–95	316.6	29.8	208.1	5.8	517.2	58.7	151.7	138.5	21.3
1995–96	280.0	21.6	220.0	4.8	442.1	60.4	156.0	127.9	21.4
1996–97	353.1	25.9	199.6	6.7	522.6	72.1	167.6	123.0	25.2
1997–98	308.8	19.9	223.0	7.0	499.8	65.0	152.9	123.0	26.4
GROSS VALUE OF PRODUCTION (\$m)									
1990–91	182.6	23.6	235.2	19.7	164.6	44.0	83.6	37.3	26.3
1991–92	269.4	33.5	270.0	20.2	202.8	49.0	127.1	39.0	29.9
1992–93	263.4	30.6	299.8	19.2	212.1	49.7	103.0	41.8	37.5
1993–94	237.6	27.1	203.3	27.0	230.0	53.2	89.0	45.2	37.2
1994–95	269.8	28.8	254.7	27.2	214.8	50.0	73.4	43.3	31.9
1995–96	305.3	30.7	224.9	22.7	219.5	50.3	90.7	36.4	33.4
1996–97	393.4	39.0	216.6	29.1	256.3	60.1	106.2	39.3	38.6
1997–98	297.5	30.5	230.3	28.4	254.1	53.7	108.7	37.3	44.1

(a) Excludes Nashi.

Source: *Value of Agricultural Commodities Produced, Australia* (7503.0); *Agriculture, Australia* (7113.0).



## Grapes

Grapes are a temperate crop which requires warm to hot summer conditions for ripening and predominantly winter rainfall. Freedom from late spring frosts is essential. They are grown for winemaking, drying and, to a lesser extent, for table use (see tables 15.31 and 15.32). Some of the better known wine producing areas are the Barossa, Clare, Riverland, Southern Districts and

Coonawarra (South Australia); north-eastern Victoria and Great Western (Victoria); Hunter and Riverina (New South Wales); Sunraysia (New South Wales and Victoria); and Swan Valley and Margaret River (Western Australia).

The gross value of grape production for 1997–98 increased significantly to reach \$1,000m (table 15.31).

**15.31 VITICULTURE, Area, Production and Value**

Year	Area		Production of grapes(a) used for		Total production(b)	
	Bearing	Total	Winemaking	Drying	Quantity	Gross value
	'000 ha	'000 ha	'000 t fresh weight	'000 t fresh weight	'000 t fresh weight	\$m
1992–93	58	63	545	197	793	377.6
1993–94	61	67	662	213	920	450.1
1994–95	63	73	578	147	769	511.1
1995–96	65	81	782	248	1 087	714.3
1996–97	72	90	743	136	943	721.5
1997–98	78	99	871	177	1 112	1 000.2

(a) Excludes the Northern Territory and the Australian Capital Territory. (b) Includes grapes used for table and other purposes.

Source: *Value of Agricultural Commodities Produced, Australia (7503.0)*; *Agricultural Commodities, Australia 1997–98 (7121.0)*; *Agriculture, Australia 1997–98 (7113.0)*.

**15.32 VITICULTURE, Area and Production—1998 Season**

Variety	Area of vines at harvest			Production of grapes used for(a)			
	Bearing	Not yet bearing	All vines	Winemaking	Drying	Other	Total
	ha	ha	ha	tonnes fresh weight	tonnes fresh weight	tonnes fresh weight	tonnes fresh weight
<b>Red grapes</b>							
Cabernet Sauvignon	9 769	5 402	15 172	94 085	—	2	<b>94 087</b>
Currant (including Carina)	979	43	1 022	5 562	8 692	61	<b>14 314</b>
Grenache	1 873	124	1 997	24 025	23	18	<b>24 065</b>
Mataro	577	144	721	8 331	41	39	<b>8 412</b>
Pinot Noir	1 789	503	2 292	19 716	—	—	<b>19 716</b>
Shiraz	11 968	5 414	17 382	135 325	—	59	<b>135 383</b>
Other red grapes	5 953	3 558	9 510	47 458	500	21 144	<b>69 104</b>
<b>Total red grapes</b>	<b>32 908</b>	<b>15 188</b>	<b>48 096</b>	<b>34 502</b>	<b>9 256</b>	<b>21 323</b>	<b>365 081</b>
<b>White grapes</b>							
Chardonnay	12 749	1 978	14 728	152 979	—	8	<b>152 986</b>
Doradillo	378	10	387	9 409	—	—	<b>9 409</b>
Muscat Gordo Blanco	2 913	103	3 016	58 894	7 873	191	<b>66 958</b>
Palomino and Pedro Ximenes	394	4	398	6 299	—	—	<b>6 299</b>
Rhine Riesling	3 206	182	3 387	34 028	—	—	<b>34 028</b>
Semillon	4 216	1 071	5 287	57 682	—	—	<b>57 682</b>
Sultana	13 042	450	13 492	109 306	155 324	29 953	<b>294 582</b>
Waltham Cross	430	20	450	1 935	3 574	1 588	<b>7 097</b>
Other white grapes	7 855	1 515	9 371	108 593	543	11 909	<b>118 047</b>
<b>Total white grapes</b>	<b>45 183</b>	<b>5 333</b>	<b>50 516</b>	<b>536 125</b>	<b>167 314</b>	<b>43 649</b>	<b>747 088</b>
<b>Total grapes</b>	<b>78 090</b>	<b>20 521</b>	<b>98 612</b>	<b>870 627</b>	<b>176 570</b>	<b>64 972</b>	<b>1 112 170</b>

(a) Excludes the Northern Territory and the Australian Capital Territory, where varietal data are not collected.

Source: *Australian Wine and Grape Industry, 1998 (1329.0)*.

## Selected other crops

### Oilseeds

The oilseeds industry is a relatively young industry by Australian agricultural standards. The specialist oilseed crops grown in Australia are sunflower, soybeans, canola, safflower and linseed. Sunflower and soybeans are summer grown while the others are winter crops. In Australia, oilseeds are crushed for their oil, which is used for edible and industrial purposes, and protein meals for livestock feeds.

While oilseed crops are grown in all States, the largest producing regions have been the grain growing areas of the eastern States. The last 12 years have seen a rapid rise in the popularity of canola, with production in 1997–98 of 855,000 tonnes, up 37% from 1996–97. Australian production of oilseeds reached 1.0 million tonnes in 1997–98, an increase of 141,000 tonnes over the 1996–97 production (table 15.33). The biggest contribution to the increase came from Western Australia, which increased its canola production from 108,000 tonnes to 270,000 tonnes.

**15.33 OILSEEDS, Area and Production**

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
AREA ('000 ha)							
1992–93	119	37	50	14	12	—	<b>232</b>
1993–94	177	66	88	24	37	—	<b>392</b>
1994–95(a)	217	95	92	33	104	—	<b>540</b>
1995–96(a)	227	105	57	35	99	—	<b>522</b>
1996–97(b)	247	115	112	42	107	—	<b>622</b>
1997–98(b)	310	125	89	67	248	—	<b>839</b>
PRODUCTION ('000 t)							
1992–93	198	41	36	16	12	—	<b>304</b>
1993–94	301	83	82	32	48	—	<b>545</b>
1994–95(a)	147	69	64	30	108	—	<b>417</b>
1995–96(a)	339	143	46	51	117	—	<b>697</b>
1996–97(b)	432	147	120	57	108	—	<b>864</b>
1997–98(b)	419	142	82	92	270	—	<b>1 005</b>

(a) Excludes linseed. (b) Excludes peanuts and cotton seed.

Source: AgStats (7117.0); *Agricultural Commodities, Australia 1997–98* (7121.0).

## Cotton

Cotton is grown in New South Wales and Queensland, primarily for its fibre (lint). When the cotton is mature, seed cotton is taken to a gin where it is separated (ginned) into lint and seed. Lint is used for yarn while seed is further processed at an oil mill. There the short fibres (linters) remaining on the seed after ginning are removed. They are too short to make into cloth but are used for wadding, upholstery and paper. The seeds are then separated into kernels and hulls. Hulls are used for stock feed and as fertiliser, while kernels are crushed to extract oil. The oilcake residue (crushed kernels) is ground into meal, which is a protein roughage also used as stock feed.

The quantity and value of seed cotton production have risen significantly over the past two years (table 15.34), making it Australia's second most

valuable crop in gross value terms after wheat. The yield has increased from 2.9 tonnes per hectare in 1995–96 to 4 tonnes per hectare in 1997–98, the highest since 1991–92.

## Sugar

Sugar cane is grown commercially in Australia along the east coast over a distance of some 2,100 kilometres in a number of non-contiguous areas from Maclean in northern New South Wales to Mossman in Queensland. The geographical spread contributes to the overall reliability of the sugar cane crop and to Australia's record as a reliable sugar supplier.

About 95% of production occurs in Queensland (table 15.35), with some 75% of the crop grown north of the Tropic of Capricorn in areas where rainfall is reliable and the warm, moist and sunny conditions are ideal for growing sugar cane. Farm sizes generally range between 20 and 70 hectares.

### 15.34 COTTON, Area, Production and Exports

Year	Seed cotton(a)			Raw cotton exports			
	Area	Quantity	Gross value	Cottonseed(b)	Lint(b)	Quantity	Value f.o.b.
	'000 ha	'000 t	\$m	'000 t	'000 t	'000 t	\$m
1992–93	287	1 000	706	528	373	395	753
1993–94	293	788	652	466	329	360	732
1994–95	245	796	851	474	335	297	679
1995–96	315	923	1 003	595	421	311	762
1996–97	378	1 485	1 342	860	608	505	1 077
1997–98	381	1 519	1 360	941	666	593	1 386

(a) Before ginning. (b) Estimated by the Australian Bureau of Agricultural and Resource Economics (ABARE), and the ABS Foreign Trade Section.

Source: ABARE, *Australian Commodities Forecasts and Issues*, 1998; *Value of Agricultural Commodities Produced, Australia* (7503.0); AgStats (7117.0); *Agricultural Commodities, Australia 1997–98* (7121.0); *Agriculture, Australia 1997–98* (7113.0).

### 15.35 SUGAR CANE, Area, Production and Yield

Year	New South Wales					Queensland				
	Sugar cane cut for crushing			Raw sugar		Sugar cane cut for crushing			Raw sugar	
	Area harvested	Production	Yield	Quantity	Yield	Area harvested	Production	Yield	Quantity	Yield
	'000 ha	'000t	t/ha	'000t	t/ha	'000 ha	'000t	t/ha	'000t	t/ha
1992–93	16	1 667	107.3	240	15.0	312	26 292	84.2	4 016	12.9
1993–94	15	1 674	112.7	218	14.5	323	29 638	91.8	4 082	12.6
1994–95	16	1 825	111.2	242	15.1	347	31 146	89.8	4 821	13.8
1995–96	18	1 923	107.8	237	12.9	359	33 898	94.6	4 596	12.6
1996–97	18	2 231	124.0	276	14.9	371	36 232	97.6	4 991	13.1
1997–98	19	2 416	127.0	288	15.2	394	36 790	93.4	5 223	13.3

Source: AgStats (7117.0); ABARE, *Australian Commodities Forecasts and Issues*, 1998; *Agricultural Commodities, Australia 1997–98* (7121.0).

**15.36 FODDER CROPS, Area and Production**

Year	Hay(a)				
	Area	Quantity	Production	Green feed or silage(b)	
			Gross value	Area	Silage made
	'000 ha	'000 t	\$m	'000 ha	'000 t
1991–92	(c)450	(c)1 480	(c)159.0	(d)759	(d)687
1992–93	(c)324	(c)1 220	(c)119.2	(d)712	(d)883
1993–94	321	1 227	136.3	707	1 142
1994–95	484	1 074	158.1	n.a.	n.a.
1995–96	531	1 965	237.1	1 000	n.a.
1996–97	362	1 329	154.9	n.a.	1 686
1997–98	460	1 737	150.4	n.a.	2 129

(a) Principally oaten and wheaten hay. (b) Principally from oats, barley, wheat and forage sorghum. (c) Excludes wheat for hay for all States except New South Wales. (d) Excludes oats for New South Wales, Victoria, Tasmania and the Northern Territory.

Source: AgStats (7117.0); *Agricultural Commodities, Australia 1997–98* (7121.0).

**Fodder crops**

Considerable areas of Australia are devoted to fodder crops, which are either used for grazing (as green feed) or harvested and conserved as hay and silage (table 15.36).

The development of fodder conservation as a means of supplementing pasture and natural sources of stockfeed is the result of the seasonal and generally unreliable nature of rainfall in Australian agricultural areas.

Drought conditions in the early 1980s led to a decline in the beef herd until 1984. For the next five years, the size of the herd remained relatively stable. Since 1989, cattle numbers have gradually increased despite unfavourable weather conditions continuing in many parts of Australia. Table 15.39 shows the number of cattle by State/Territory.

**Livestock**

The numbers of each of the principal categories of livestock in Australia are shown in table 15.37 at 10-yearly intervals from 1861 to 1991, and then yearly.

**Cattle**

Cattle farming is carried out in all States. While dairy cattle are restricted mainly to southern and coastal districts, beef cattle are concentrated in Queensland and New South Wales. Table 15.38 shows the number of cattle by age, sex and purpose.

Cattle numbers in Australia increased slowly during the 1960s and 1970s, despite seasonal changes and heavy slaughterings, to a peak of 33.4 million in 1976. Beef cattle production is often combined with cropping, dairying and sheep. In the northern half of Australia, cattle properties and herd sizes are very large, pastures are generally unimproved, fodder crops are rare and beef is usually the only product. The industry is more intensive in the south because of the more favourable environment, including improved pasture (see map 15.40).

**15.37 LIVESTOCK**

	Cattle	Sheep and lambs	Pigs
31 March	'000	'000	'000
1861	3 958	20 135	351
1871	4 276	41 594	543
1881	7 527	62 184	816
1891	10 300	97 881	891
1901	8 640	70 603	950
1911	11 745	98 066	1 026
1921	13 500	81 796	674
1931	11 721	110 568	1 072
1941	13 256	122 694	1 797
1951	15 229	115 596	1 134
1961	17 332	152 579	1 615
1971	24 373	177 792	2 590
1981	25 168	134 407	2 430
1991	(a)23 662	163 238	2 531
1992	(a)23 880	148 203	2 570
1993	(a)24 062	138 099	2 646
1994	(a)25 758	132 569	2 775
1995	(a)25 731	120 862	2 653
1996	(a)26 377	121 116	2 526
1997	(a)26 780	120 228	2 555
1998	(a)26 826	117 494	2 768
1999p	(a)25 833	117 176	2 604

(a) Excludes house cows.

Source: AgStats (7117.0); *Principal Agricultural Commodities, Australia, Preliminary, 1998–99* (7111.0).

**15.38 CATTLE, By Age, Sex and Purpose—As at 31 March**

	1994	1995	1996	1997	1998	1999p
	'000	'000	'000	'000	'000	'000
Milk cattle						
Cows (in milk and dry)	1 786	1 821	1 884	1 977	2 060	2 121
Other milk cattle	892	919	923	982	1 015	1 040
Total	2 678	2 740	2 808	2 958	3 076	3 161
Meat cattle						
Bulls used or intended for service	557	555	553	553	546	488
Cows and heifers (1 year and over)	12 076	11 213	11 667	11 931	11 769	11 264
Calves under 1 year	5 388	5 806	5 768	6 047	6 022	5 717
Other cattle (1 year and over)	5 058	5 418	5 581	5 291	5 412	5 204
Total	23 080	22 991	23 569	23 822	23 750	22 672
<b>Total all cattle(a)</b>	<b>25 758</b>	<b>25 731</b>	<b>26 377</b>	<b>26 780</b>	<b>26 826</b>	<b>25 833</b>

(a) Excludes house cows.

Source: AgStats (7117.0); Principal Agricultural Commodities, Australia, Preliminary, 1998–99 (7111.0).

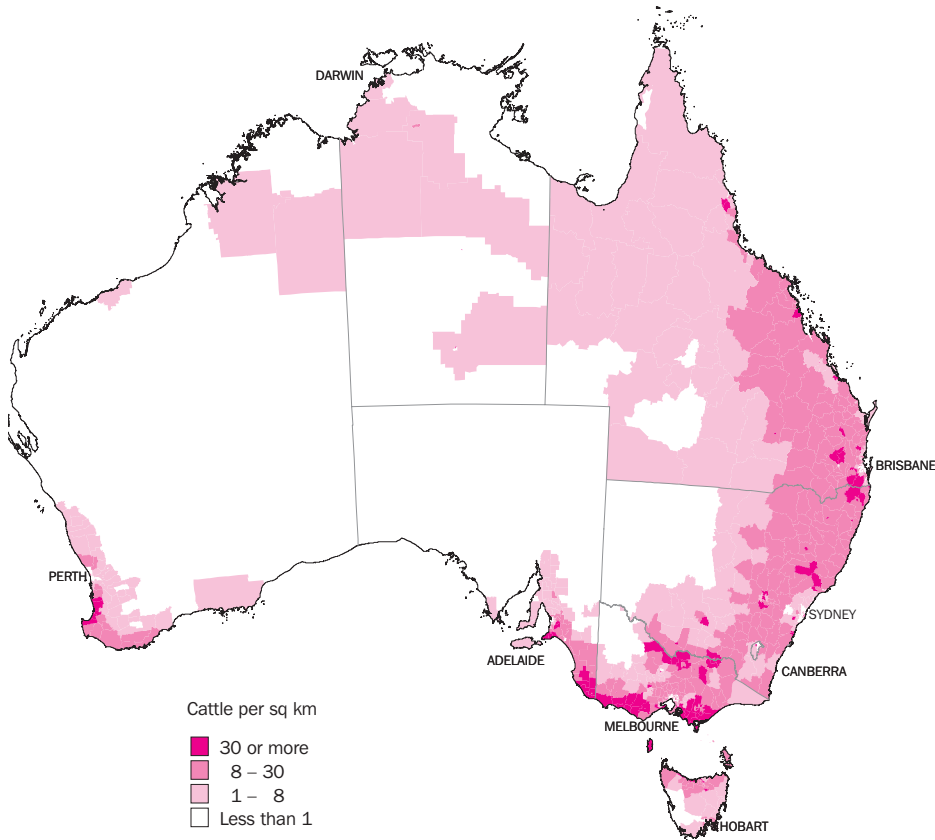
**15.39 CATTLE, By State/Territory(a)**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Aust.(b)
Year	'000	'000	'000	'000	'000	'000	'000	'000
1994	6 515	4 189	9 942	1 202	1 806	679	1 435	<b>25 758</b>
1995	6 236	4 280	9 974	1 216	1 899	693	1 421	<b>25 731</b>
1996	6 390	4 396	10 214	1 219	1 924	718	1 503	<b>26 377</b>
1997	6 511	4 411	10 422	1 181	1 909	725	1 609	<b>26 780</b>
1998	6 351	4 142	10 841	1 214	1 973	728	1 567	<b>26 826</b>
1999p	6 052	4 021	10 385	1 164	1 942	723	1 537	<b>25 833</b>

(a) Excludes house cows. (b) Includes the Australian Capital Territory.

Source: AgStats (7117.0); Principal Agricultural Commodities, Australia, Preliminary, 1998–99 (7111.0).

## 15.40 CATTLE FOR ALL PURPOSES, Excluding House Cows—1 March 1997



(a) This map has been generated using small area data from the 1996–97 Agricultural Census.

Source: AgStats (7117.0).

## Dairying

Dairying is a major Australian agricultural industry, ranking third behind the wheat and beef industries in terms of value added. Table 15.41 shows that the number of milk cattle in 1999, at 3.1 million, was 3% greater than in 1998. The estimate of the gross value of dairy production at farm gate prices in 1997–98 was \$2,815m (table 15.42), 10% of the gross value of agricultural production. The industry is a significant employer in terms of downstream employment. About 45,500 people were employed in related manufacturing, processing and farm establishments in 1998–99.

The entry of the United Kingdom, Australia's then largest market, into the European Union in 1973 forced the Australian dairy industry to become more internationally competitive and to develop new export trade links. This emphasis was reinforced with the introduction of the Kerin Plan on 1 July 1986, which directly linked domestic product prices to international market returns. Around 50% of Australian milk production is now exported in manufactured forms, with just under 80% of these sales destined for markets in Asia and the Middle East.

## Dairy production

There are areas in Australia where climate and natural resources are favourable to dairying and allow production to be based on year-round pasture grazing. This encourages efficient, low cost milk production. With the exception of several inland river schemes, pasture growth generally depends on natural rainfall. Most non-irrigated dairy production is located in coastal fringe areas. Feedlot based dairying is expanding although it remains uncommon in Australia. The use of supplementary feed, such as grains, has become more common throughout the industry in recent years.

While seasonal conditions continue to have some influence on yearly output, Australian milk production has risen steadily over the past seven years and in 1997–98 was 9,440 million litres (table 15.42), an increase of 4% over the previous year.

## Dairy domestic market

Average annual per capita milk consumption by Australians has stabilised at around 100 litres since the mid-1980s. However, there have been

substantial changes in the types of fresh milk consumed, with fat reduced and modified milks taking an increasing share of overall market milk sales.

In 1997–98, Australians consumed 10.9 kg of cheese per person, the same as in 1996–97. Per capita milk consumption fell by 4% to 103.7 litres.

### 15.41 MILK CATTLE

	Cows and heifers used or intended for production of milk or cream for sale		
	Cows (in milk and dry)	Other milk cattle	Total(a)
31 March	'000	'000	'000
1994	1 786	892	<b>2 678</b>
1995	1 821	919	<b>2 740</b>
1996	1 884	923	<b>2 808</b>
1997	1 977	982	<b>2 958</b>
1998	2 060	1 015	<b>3 076</b>
1999p	2 121	1 040	<b>3 161</b>

(a) Excludes house cows.

Source: AgStats (7117.0); Principal Agricultural Commodities, Australia, Preliminary 1998–99 (7111.0).

### 15.42 WHOLE MILK, Production, Use and Gross Value

Year	Whole milk intake by factories			
	Market milk sales by factories	Milk used in the manufacture of dairy products	Total intake	Gross value
	mill. litres	mill. litres	mill. litres	\$m
1992–93	1 810	5 519	7 329	2 314
1993–94	1 845	6 232	8 077	2 448
1994–95	1 893	6 313	8 206	2 419
1995–96	1 905	6 810	8 715	2 848
1996–97	1 920	7 116	9 036	2 809
1997–98p	1 921	7 519	9 440	2 815

Source: Australian Dairy Corporation; Value of Principal Agricultural Commodities Produced, Australia, Preliminary, 1997–98 (7501.0).

## Sheep

New South Wales has generally been the State with the most sheep, except for a short period in the early 1860s, when the flocks in Victoria were larger. Western Australia is currently the second largest sheep raising State, with Victoria third (table 15.43).

Sheep numbers reached a peak of 180 million in Australia in 1970. In general, numbers have fallen since this time. Poor market prospects for wool since 1990 have had a marked impact on the flock size. It fell rapidly until 1995, after which the decrease has been much slower (table 15.44).

Map 15.45 shows the distribution of sheep and lambs in Australia at 31 March 1997.

**15.43 SHEEP AND LAMBS, By State—At 31 March**

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
31 March	mill.	mill.	mill.	mill.	mill.	mill.	mill.
1994	46.5	23.4	11.5	14.7	32.0	4.3	<b>132.6</b>
1995	40.5	21.4	11.6	13.2	30.2	3.9	<b>120.9</b>
1996	41.1	22.0	10.7	13.6	29.8	3.9	<b>121.1</b>
1997	42.4	22.3	10.5	13.1	27.8	4.0	<b>120.2</b>
1998	40.9	21.1	11.0	13.1	27.5	3.9	<b>117.5</b>
1999p	40.6	21.6	10.8	13.3	27.1	3.8	<b>117.2</b>

Source: AgStats (7117.0); *Principal Agricultural Commodities, Australia, Preliminary, 1998–99* (7111.0).

**15.44 SHEEP AND LAMBS—At 31 March**

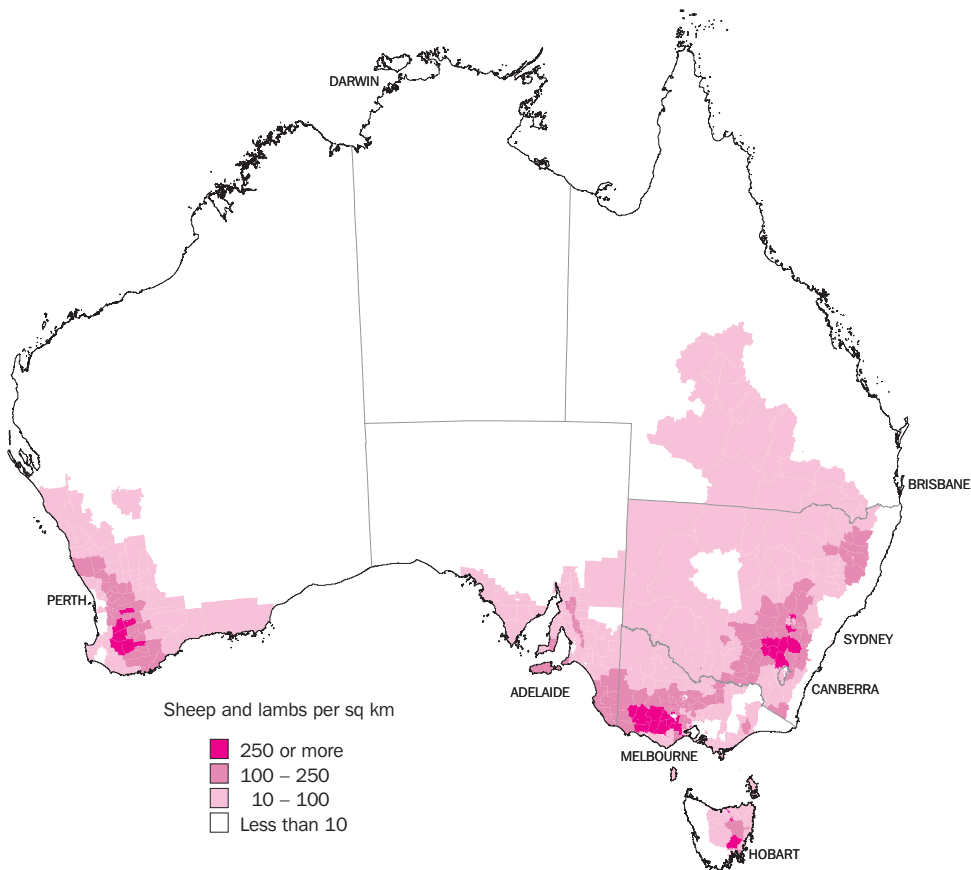
	1994	1995	1996	1997	1998	1999p
	mill.	mill.	mill.	mill.	mill.	mill.
Sheep (1 year and over)						
Rams	1.4	(a)	(a)	(a)	(a)	(a)
Breeding ewes	60.8	(a)	57.2	57.4	55.7	56.3
Other ewes	5.9	(a)	(a)	(a)	(a)	(a)
Wethers	34.8	(a)	(a)	(a)	(a)	(a)
All sheep	102.8	94.0	91.7	89.8	87.5	87.4
Lambs and hoggets (under 1 year)	29.7	26.8	29.4	30.5	30.1	29.7
<b>Total sheep and lambs</b>	<b>132.6</b>	<b>120.9</b>	<b>121.1</b>	<b>120.2</b>	<b>117.5</b>	<b>117.2</b>

(a) Not separately collected.

Source: AgStats (7117.0); *Principal Agricultural Commodities, Australia, Preliminary, 1998–99* (7111.0).



15.45 SHEEP AND LAMBS, Total Number—31 March 1997



(a) This map has been generated using small area data from the 1996–97 Agricultural Census.

Source: AgStats (7117.0).

**Pigs**

Pig farming is a highly intensive industry in Australia, with the majority of pigs grown in specially designed sheds which provide the animals with shelter from the heat, rain and cold. The pig farming industry is a large user of feed grain and tends to expand when grain prices are low. Following a decline in recent years, and despite historically low current prices for pig meat, the numbers of pigs increased in 1997–98 by about 8% to 2.8 million, while the number of

establishments classified to pig farming fell by 4% to 3,900. This reflects recent adjustments in the Australian pig industry as smaller producers leave the industry and existing producers increase their size of operations in an attempt to remain viable. Preliminary estimates for 1998–99 reflect the cyclical nature of the industry, showing a 6% drop in the number of pigs from 1997–98 to 1998–99.

As table 15.46 shows, New South Wales is the largest producer of pigs, followed by Queensland.

**15.46 PIGS**

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.(a)
31 March	'000	'000	'000	'000	'000	'000	'000
1994	834	460	682	440	312	46	<b>2 775</b>
1995	791	439	644	423	316	38	<b>2 653</b>
1996	710	458	603	412	314	26	<b>2 526</b>
1997	729	485	600	417	297	24	<b>2 555</b>
1998	849	518	648	424	303	24	<b>2 768</b>
1999p	763	484	641	399	296	21	<b>2 604</b>

(a) Includes the Northern Territory and the Australian Capital Territory.

Source: AgStats (7117.0); *Principal Agricultural Commodities, Australia, Preliminary 1998–99* (7111.0).

**15.47 POULTRY**

	Chickens(a)			Other poultry(c)			Total all poultry
	Hens and pullets for egg production	Meat strain chickens (broilers)(b)	Total chickens	Ducks	Turkeys	Other poultry	
31 March	'000	'000	'000	'000	'000	'000	'000
1991	12 257	39 429	54 330	364	1 426	442	<b>56 562</b>
1992	10 735	44 318	59 320	413	1 317	(c)500	<b>61 550</b>
1993	12 565	51 157	63 722	404	1 093	(c)330	<b>69 951</b>
1994	13 163	55 513	68 676	447	839	374	<b>70 336</b>
1995(d)	11 148	54 445	65 593	(e)	(e)	2 088	<b>67 682</b>
1996	13 413	62 331	75 744	411	1 222	1 040	<b>78 417</b>
1997	14 059	67 373	81 432	390	1 211	909	<b>83 942</b>
1998	14 036	75 504	89 540	456	1 268	673	<b>91 937</b>

(a) Includes breeding stock. (b) Excludes meat strain chickens in Tasmania. (c) Excludes turkeys in South Australia. (d) Excludes other poultry in South Australia. (e) Not collected.

Source: *Livestock Products, Australia* (7215.0); *Agricultural Commodities, Australia* (7121.0).

**Poultry**

Poultry farming is a highly intensive industry in Australia, with the majority of poultry raised in large sheds which provide the birds with a stable environment protected from the elements. The poultry farming industry consists of two streams, meat production and egg production, both being major users of feed grains. The industry has grown over recent years, with production expanding to meet increased demand. Meat strain chickens are the largest category of poultry in Australia, followed by hens and pullets for egg production (table 15.47).

**Meat production and slaughterings**

Tables 15.48 and 15.49 show details of slaughterings and meat production from abattoirs, and from commercial poultry and other slaughtering establishments, and include estimates of animals slaughtered on farms and by country butchers. The data relate only to

slaughterings for human consumption and do not include animals condemned or those killed for boiling down.

Production of beef reached record levels in recent years, partly as a result of the drop in live cattle exports and partly because poor seasonal conditions and low market prices have provided little incentive for producers to build up herd numbers. Production of beef for 1998–99 increased by 3% over the previous 12 months, to a record 1.97 million tonnes.

Production of sheep meats in Australia is closely associated with the wool industry. Sheep grazing often occurs on mixed farms in conjunction with beef and/or grain enterprises, and in some areas producers specialise in lamb production. The supply of sheep meat depends greatly on seasonal conditions, decisions to build up or reduce flock numbers, expectations of wool prices, live sheep exports and the pattern of domestic consumption of meat.

Significant changes have taken place in the pig meat producing industry in recent years. Capital investment and corporate takeovers have seen the emergence of a few large companies producing 30% of all pig meat sold in Australia. These moves, on top of the trend to more intensive and efficient production techniques, have seen pig meat production rise steadily since 1982 to reach a peak in 1994–95 of 365,000 tonnes. Production of pig meat increased marginally in 1998–99 to 362,000 tonnes.

Table 15.50 shows a time series of the gross value of livestock slaughterings. The value of slaughterings and other disposals dropped sharply in 1995–96, due to a drop in the value of cattle and calves slaughtered. The value has increased in each of the last two years, 1997–98 showing a 6% increase over 1996–97.

#### 15.48 PRODUCTION OF MEAT(a)

Year	Carcass weight					Dressed weight(b)(c)	
	Beef	Veal	Mutton	Lamb	Pig meat	Total meat	Total all chickens Total poultry(d)
	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t
1993–94	1 786	39	381	267	357	2 830	469
1994–95	1 766	38	354	268	365	2 791	467
1995–96	1 711	34	310	265	347	2 667	481
1996–97	1 777	38	298	275	339	2 727	496
1997–98	1 911	44	333	283	356	2 927	550
1998–99	1 973	38	301	312	370	2 994	573

(a) Excludes offal. (b) Excludes Tasmania, the Northern Territory and the Australian Capital Territory. (c) Dressed weight of whole birds, pieces and giblets. (d) Includes other fowls, turkeys, ducks and drakes.

Source: Unpublished data; *Livestock Products, Australia* (7215.0).

#### 15.49 LIVESTOCK AND POULTRY SLAUGHTERED FOR HUMAN CONSUMPTION

Year	Cattle	Calves	Sheep	Lambs	Pigs	Chickens(a)(b)	Other fowls(c) and turkeys(b)	Ducks and drakes(b)
	mill. head	mill. head	mill. head	mill. head	mill. head	mill. head	mill. head	mill. head
1993–94	7.3	1.0	17.8	15.0	5.2	329.5	8.0	2.5
1994–95	7.2	1.0	17.5	15.3	5.1	330.5	8.7	2.3
1995–96	6.9	1.0	14.6	14.2	4.8	336.4	9.6	2.6
1996–97	7.3	1.1	14.5	14.8	4.7	345.6	10.0	3.1
1997–98	8.1	1.3	16.3	14.9	5.1	368.7	9.9	2.9
1998–99	7.9	1.1	14.2	15.9	5.0	381.7	9.8	3.5

(a) Comprises broilers, fryers and roasters. (b) Excludes Tasmania, the Northern Territory and the Australian Capital Territory. (c) Comprises hens, roosters, etc.

Source: *Livestock Products, Australia* (7215.0).

#### 15.50 GROSS VALUE OF LIVESTOCK SLAUGHTERINGS AND OTHER DISPOSALS(a)

Year	Cattle and calves	Sheep and lambs	Pigs	Poultry	Total(b)
	\$m	\$m	\$m	\$m	\$m
1990–91	3 869.4	364.2	691.0	788.3	5 721.0
1991–92	3 801.9	460.6	658.6	778.0	5 738.1
1992–93	3 839.2	663.0	649.5	833.5	6 023.5
1993–94	4 433.5	793.6	660.5	929.3	6 852.9
1994–95	4 213.5	836.8	630.6	902.0	6 618.8
1995–96	3 575.9	1 035.7	597.8	948.1	6 192.7
1996–97	3 390.1	1 038.9	671.1	1 053.3	6 190.1
1997–98	3 763.1	1 007.4	672.8	1 122.0	6 586.4

(a) Includes adjustment for net exports of live animals. (b) Includes goats and buffalo.

Source: *Value of Agricultural Commodities Produced, Australia* (7503.0); *Agriculture, Australia* (7113.0).

In 1997–98 Japan continued to be the best customer for Australian beef with 324,000 tonnes purchased, 13% more than the previous year's shipment. Liberalisation of the Japanese market in 1991 involved the removal of import quotas in exchange for a percentage of customs value. The United States also increased its take in 1997–98, buying 244,000 tonnes, 14% more than the previous year. Shipments to the United Kingdom increased 24% to 10,000 tonnes, but exports of Australian beef to Canada fell by 7% to 32,000 tonnes.

Table 15.51 shows a time series of the volume of exports of fresh, chilled or frozen meat. The

market was dominated by bone-out beef, which increased by 5% to 835,000 tonnes in 1998–99, bone-in mutton which increased by 6% to 115,000 tonnes and bone-in lamb which increased 15% to 71,000 tonnes. Pork exports increased 33% to 16,400 tonnes, but are still one of the smaller meat sectors.

Table 15.52 shows a time series of the number, gross weight, gross value and unit value of live sheep and cattle exports. The number of live sheep exports fell marginally in 1998–99. The number of live cattle exported in 1998–99 increased slightly to 716,000; gross weight and gross value increased by similar proportions.

#### 15.51 EXPORTS OF FRESH, CHILLED OR FROZEN MEAT(a)

Year	Beef(b)(c)		Veal(b)		Mutton(b)		Lamb(b)		Pork
	Bone-in	Bone-out	Bone-in	Bone-out	Bone-in	Bone-out	Bone-in	Bone-out	Meat
	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t	'000 t
1991–92	100.0	691.5	1.5	5.7	103.7	75.0	39.4	4.6	5.0
1992–93	81.0	739.9	2.1	5.4	80.2	77.4	46.7	5.5	7.0
1993–94	62.7	742.4	1.3	5.8	97.9	71.0	52.7	5.2	5.9
1994–95	59.8	717.4	2.0	6.9	103.4	65.4	48.6	4.6	5.5
1995–96	50.7	702.6	1.7	5.3	81.0	64.3	46.3	7.8	5.7
1996–97	48.6	692.1	1.2	3.8	92.3	50.7	54.1	8.4	6.7
1997–98	46.9	796.0	1.8	5.4	107.8	59.1	62.2	8.8	12.3
1998–99	60.9	835.2	1.6	6.1	114.5	51.3	71.4	9.3	16.4

(a) Excludes offal. (b) Factors can be applied to beef, veal, mutton and lamb bone-out figures to derive bone-in carcass weight estimates which, when added to bone-in figures, show total exports in carcass weight. The factor for beef and veal is 1.5 and that for mutton and lamb is 2.0 (source: Australian Meat and Livestock Corporation). (c) Includes buffalo meat.

Source: Unpublished data, Merchandise Exports.

#### 15.52 LIVE SHEEP AND CATTLE EXPORTS(a)

Year	Live sheep exports				Live cattle exports			
	No.	Gross weight	Gross value	Unit value(b)	No.	Gross weight	Gross value	Unit value(b)
	'000	'000 t	\$'000	\$	'000	'000 t	\$'000	\$
1991–92	4 395.6	258.0	87 717	20.00	107.4	33.2	54 930	511.40
1992–93	5 097.1	270.5	121 933	23.92	148.6	50.4	69 847	470.20
1993–94	5 429.8	287.4	148 907	27.42	234.7	79.9	115 020	489.97
1994–95	5 697.0	290.2	184 291	32.35	385.7	136.5	201 948	523.52
1995–96	5 879.9	296.9	226 913	38.59	615.9	219.0	343 699	558.07
1996–97	5 237.2	269.8	189 944	36.27	863.8	313.9	427 721	495.19
1997–98	5 005.6	275.6	193 759	38.71	703.6	257.6	338 475	481.10
1998–99	4 959.0	254.9	181 634	36.63	716.4	266.1	343 807	479.90

(a) Excludes live sheep and cattle for breeding. (b) Obtained by dividing the gross value by the number of sheep, or cattle.

Source: Unpublished data, Merchandise Exports.

## Wool

### The wool industry

Australia is the world's largest wool producing country, accounting for about 30% of world production. Wool production has been declining in Australia and the world for the last 10 years, and is expected to continue to do so in the medium term. Since 1990, Australian wool production has fallen by about 35%, to around 655,000 tonnes in 1997–98. Almost all of Australia's wool is exported, the major markets being China and Hong Kong, followed by Italy, some other western European countries and Japan.

Over the last decade, wool producers have had to face significant changes in the industry, including a decline in the underlying demand for wool, changes to wool marketing arrangements, disruption of traditional international markets, and strong competition from other fibres, all of which have had a major impact on the profitability of all sectors of the wool industry.

The recent decline in the underlying demand for wool reflects changes in lifestyle (such as the trend to more informal, easycare clothing), and the increasing competition from other fibres, particularly high quality synthetic fibres. On top of this, economic upheaval in many countries traditionally considered to be large purchasers of wool, particularly the Asian economies, has resulted in limited demand for wool. These factors, together with a very large supply of wool left over from the high production of the late 1980s and early 1990s, have resulted in a dramatic fall in the price of wool in recent years.

Demand for wool has traditionally been a cyclical phenomenon, determined largely by economic cycles and world wide trends in clothing fashion. Attempts to minimise the damaging effect of these short term cycles on the income of woolgrowers have been in place for many years. In 1970 a reserve price scheme was introduced, the original intention of which was to protect wool growers from severe short term price reductions caused by fluctuations in the demand for wool. A minimum reserve price was introduced in 1974 to provide growers with a guaranteed minimum price for their wool. The scheme was funded by a proportion of the tax paid by growers on the value of shorn wool, and was administered by the Australian Wool

Corporation (AWC), which purchased all wool not meeting the minimum reserve price at auction. This wool was later sold during periods of higher prices.

The reserve price scheme worked well for about 20 years. However a combination of a sharp fall in demand and a high reserve price (set during a period of high demand in the late 1980s), resulted in the scheme being suspended in February 1991, when the size of the AWC stockpile had reached 4.7 million bales. The Government, with the agreement of the industry, decided that the scheme could no longer be maintained.

The Australian Wool Realisation Commission (AWRC) was initially responsible for the disposal of the wool stockpile. In December 1993 the disposal of the stockpile became the responsibility of Wool International (WI), a statutory corporation of the Commonwealth Government. WI was required to sell the stockpile in accordance with a statutorily imposed disposal schedule, the last bale of stockpile wool to be disposed of by 31 December 2000. At 30 June 1998, under the management of WI, the stockpile had been reduced to 1.2 million bales. In October 1998 the Commonwealth Government announced a freeze on sales of wool from the stockpile, and an intention to privatise WI by 1 July 1999. On this date WI became WoolStock Australia Limited, a public company limited by shares allocated to previous holders of units of equity in WI.

### Wool production

Shorn wool ('greasy wool') contains an appreciable amount of grease, dirt, vegetable matter and other extraneous material. The exact quantities of these impurities in the fleece vary with climatic and pastoral conditions, seasonal fluctuations and the breed and condition of the sheep. It is, however, the clean wool fibre that is ultimately consumed by the textile industry, and the term 'clean yield' is used to express the net wool fibre content present in greasy wool. Following a gradual upward trend, clean yields have stabilised in the 1990s at around 65%.

The gross value of wool produced in 1997–98 (\$2.8b) increased marginally from production in 1996–97 (table 15.53), but is still less than half the value recorded in 1988–89 (\$5.9b), the peak year in the wool boom of the 1980s.

**15.53 SHEARING, WOOL PRODUCTION AND VALUE**

Year	Sheep and lambs shorn	Average fleece weight	Wool production			
			Total wool			Gross value(b)
			Shorn wool	Other wool(a)	Quantity	
	mill.	kg	'000 t	'000 t	'000 t	\$m
1992–93	179.0	4.55	815.1	54.3	869.4	2 569.0
1993–94	148.7	4.49	775.8	52.6	828.3	2 449.1
1994–95	155.3	4.37	677.9	48.5	726.4	3 319.3
1995–96	146.7	4.46	659.8	43.6	703.4	2 559.7
1996–97	156.4	4.37	681.5	46.7	728.2	2 621.2
1997–98	155.5	4.22	655.1	48.9	704.0	2 753.9

(a) Comprises dead and fellmongered wool, and wool exported on skins. (b) Gross value for shorn wool is based on the average price realised for greasy wool sold at auction; for skin wools the gross value is based on prices recorded by fellmongers and skin exporters.

Source: *Value of Agricultural Commodities Produced, Australia* (7503.0); *Livestock Products, Australia* (7215.0); *Agriculture, Australia 1997–98* (7113.0).

**Wool receivals**

The total amounts of taxable wool received by brokers and purchased by dealers in recent years are shown in table 15.54. They exclude wool received by brokers on which tax had already been paid by other dealers (private buyers) or brokers.

**15.54 TAXABLE WOOL RECEIVALS**

Year	Receivals			Dealers as % of total receivals
	Brokers	Dealers	Brokers and dealers	
	'000 t	'000 t	'000 t	
1992–93	703.2	140.8	844.1	16.8
1993–94	635.2	149.0	784.2	19.0
1994–95	566.6	112.8	679.4	16.6
1995–96	548.1	93.1	641.3	14.5
1996–97	565.5	119.8	685.3	17.5
1997–98	524.0	116.7	640.5	18.2

Source: *Livestock Products, Australia* (7215.0).

## Apparent consumption of foodstuffs

Estimates of the consumption of foodstuffs in Australia are compiled by deducting exports from the sum of production and imports and allowing for recorded movement in stocks of the various commodities. The term 'consumption' is used in a specialised sense. The estimates derived are broadly the quantities available for consumption at a particular level of distribution, that is, ex-market, ex-store or ex-factory depending on

the method of marketing and/or processing. Because consumption of foodstuffs is measured, in general, at producer level, no allowance is made for consumer wastage. Ignoring this wastage will result in overstating consumption to some extent.

The estimates of consumption per capita have been obtained by using the mean resident population for the period.

Table 15.55 shows the changes in trends in the consumption of various foodstuffs since 1938–39.

**15.55 APPARENT PER CAPITA CONSUMPTION OF FOODSTUFFS**

Commodity	Units	Average three years ended							
		1938–39	1948–49	1958–59	1968–69	1978–79	1988–89	1996–97	1997–98p
Meat (carcass equivalent weight)									
Beef	kg	n.a.	n.a.	n.a.	n.a.	n.a.	38.3	37.8	36.6
Veal	kg	n.a.	n.a.	n.a.	n.a.	n.a.	1.7	1.8	1.9
Beef and veal	kg	63.6	49.5	56.2	40.0	64.8	40.0	39.6	38.4
Lamb	kg	6.8	11.4	13.3	20.5	14.4	14.9	11.1	10.9
Mutton	kg	27.2	20.5	23.1	18.8	3.6	7.3	6.0	5.9
Pigmeat	kg	3.9	3.2	4.6	6.7	13.3	17.5	17.6	17.8
Total meat	kg	101.5	84.6	97.2	85.9	96.1	79.8	74.2	73.0
Offal and meat n.e.i.	kg	3.8	4.0	5.2	5.1	5.9	3.1	1.4	1.2
<i>Total meat and meat products (carcass equivalent weight)</i>	<i>kg</i>	<i>118.5</i>	<i>103.0</i>	<i>112.4</i>	<i>98.8</i>	<i>102.0</i>	<i>82.8</i>	<i>75.6</i>	<i>74.2</i>
Canned meat (canned weight)	kg	1.0	1.2	1.9	2.2	1.6	n.a.	n.a.	n.a.
Bacon and ham (cured carcass weight)	kg	4.6	5.3	3.2	3.6	6.0	6.9	8.4	n.a.
Poultry (dressed weight)(a)	kg	n.a.	n.a.	n.a.	8.3	17.1	24.1	28.4	30.7
Milk and milk products									
Market milk (fluid whole litres)	L	106.4	138.7	128.7	128.2	100.5	101.7	104.2	103.7
Cheese (natural equivalent weight)	kg	2.0	2.5	2.6	3.5	5.3	8.8	10.9	10.9
Oils and fats									
Butter	kg	14.9	11.2	12.3	9.8	5.1	3.2	2.8	2.9
Margarine	kg	2.2	2.8	n.a.	4.9	8.5	9.0	6.6	6.7
Table margarine	kg	0.4	0.4	n.a.	1.5	5.4	6.8	4.7	4.4
Other margarine	kg	1.8	2.4	2.2	3.4	3.1	2.2	1.9	2.3
Beverages									
Tea	kg	3.1	2.9	2.7	2.3	1.7	1.2	0.8	0.8
Coffee	kg	0.3	0.5	0.6	1.2	1.6	2.0	2.4	2.3
Aerated and carbonated waters	L	n.a.	n.a.	n.a.	47.3	67.4	87.4	114.4	111.7
Beer	L	53.2	76.8	99.7	113.5	133.2	113.1	95.5	95.0
Wine	L	2.7	5.9	5.0	8.2	14.7	20.2	19.0	19.7
Spirits (litres alcohol)	L	0.5	0.8	0.7	0.9	1.2	1.2	1.3	1.4

(a) Excludes Tasmania, the Northern Territory and the Australian Capital Territory.

Source: *Apparent Consumption of Foodstuffs, Australia* (4306.0); *Apparent Consumption of Selected Foodstuffs, Australia, 1997–98, Preliminary* (4315.0); the Australian Dairy Corporation.

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# A hundred years of agriculture

*(This article has been contributed by John Pollard, recently retired after a long, distinguished career in the ABS Tasmanian Office. As the head of economic statistics work in that Office he oversighted the establishment there of the Agriculture National Project Centre, which is responsible for the collection, compilation and dissemination of agriculture statistics for Australia.)*

## Introduction

Like most industries, Australian agriculture has experienced unforeseen gains in productivity and output, through the application of new technology and science over the last 100 years. At the turn of the century, much of the energy used to operate farms came from manual labour, assisted where possible with horse, bullock and steam power. Large scale farming and grazing relied upon the availability of large numbers of unskilled workers. Today, farms which employed hundreds of labourers at the turn of the century are operated by a few people with the help of sophisticated machinery and technology. Improvements in disease and weed control, through the use of advanced chemicals, have revolutionised the ways in which farmers prepare their ground and control diseases in crops and livestock. However, adoption of technology, such as extensive use of fertilisers and irrigation, tree clearing and chemical spraying, brings its own challenges to agriculture. Extensive land degradation through increased soil salinity (such as in the Western Australia grain belt and the Murray–Darling Basin), increased soil acidity, chemical residues in agricultural products, and consumer backlash to genetically modified products, are some of these challenges.

## The start of our century

At the end of the last century Australia was emerging from the impact of two major depressions (in the 1880s and 1890s), and was in the grip of a severe drought. Despite this, Australian agriculture continued to develop and, while wool and wheat dominated the agricultural scene, primary production was already characterised by great diversity, with meat cattle, dairying, sugar cane and a wide range of horticultural crops grown.

The first two decades of the new century were characterised by a series of droughts, each having

a marked impact on livestock numbers. The 'Great Drought' from 1895 to 1903 was thought at the time to be the most widespread drought in the history of Australia. While it affected the whole country, it was most persistent on the coast of Queensland and the inland areas of New South Wales, South Australia and central Australia. Sheep numbers, which had reached more than 100 million in the early 1890s, were reduced by half, and cattle numbers by more than 40%. In the nine years from 1895 the average wheat yield exceeded 8 bushels per acre (0.55 tonne per hectare) in only one year, and dropped to 2.4 bushels per acre (0.16 tonne per hectare) in 1903, when the great drought hit the eastern States.

A number of Australian inventions and technological advances helped expansion around the turn of the century. These included:

- the stump jump plough, which allowed ploughing of areas from which stumps and roots had not been fully cleared. This resulted in the opening of the mallee country in Victoria and South Australia;
- the combine harvester, which stripped, threshed and winnowed wheat, allowing farmers to harvest wheat crops on a large scale;
- the 'scrub' roller, which facilitated the clearing of large tracts of light bush country;
- the discovery and use of water held underground in the Great Artesian Basin, which opened up thousands of square miles of country in inland New South Wales, Queensland and South Australia, previously unavailable for pastoral activities; and
- the development of irrigation around Mildura by the American Chaffey brothers.

By the start of the 20th century the horse and bullock were replacing much of the hard manual labour, the horse generally used to draw farm machinery and the bullock to transport farming produce. Bullock teams pulled wagon loads of

wheat and wool to railhead depots and river ports, where the goods were transported by train or paddle wheel steamboats to sea ports, from where the produce was exported. Steam traction engines had also entered the agricultural scene, where they were used in hay baling, grain threshing and chaff cutting. During the 1880s, steam powered shearing machines started to be widely used.

Expansion of the inland country rail network in the late 1880s meant that new areas could be farmed for grain production, resulting in an increase in crop area planted. As well as improvements in transport, improvements in genetics were having an influence on the wheat industry. In the late 1890s William Farrer created the rust resistant wheat variety 'Federation Wheat', which could be better harvested by a mechanical harvester than previous varieties. It was released in commercially viable quantities in 1901 and significantly lifted average yields in later years.

Although technological advances had reduced some of the farm workload, the era of tough manual labour had not altogether passed. In the heavily timbered lands (the Gippsland area of Victoria, the North Coast of New South Wales, the North West and North East of Tasmania for example) the immensely difficult task of clearing scrub still confronted the small farmer, known as the 'cockie'. This clearing was mainly done by ringbarking (cutting through the bark and sapwood around the trunk of the tree with an axe) to kill the big timber, and cutting down and burning the smaller trees.

Further inland, the rural scene was dominated by 'squatters', who had moved into interior New South Wales, Victoria, and other mainland colonies and held vast tracts of land, mainly used for sheep grazing. Wool was the basis of most pastoral wealth in Australia. Commonwealth Year Book No. 1 (1901–07) commented about the sheep/wool industry: "...Fortunately for Australia, the suitability of its climatic and general conditions for the production of a high class of wool was, at an early date in the history of its settlement, surmised and tested by Captain Macarthur, one of the pioneer sheep breeders of New South Wales".

While the average price for wool in 1907 was 23% above the relatively depressed prices received in 1903, the 1907–08 season saw a reversal of price trends. Wool prices continued to be depressed until the outbreak of World War I, after which

they improved (largely due to the demand for woollen service uniforms). Much of the 1916–17 wool clip was acquired by the Imperial Government at the flat rate of 15.5 pence per pound (greasy), equivalent to \$8.40 per kilogram today. Control of the compulsory acquisition scheme, under the Central Wool Committee, continued until the end of the 1919–20 season. The influence of the War on wool prices can be gauged by the fact that the average price paid for the 1917–18 clip was 40% higher than that paid in 1907, and 58% above the 1912 average price.

About 284,000 tonnes of beef and 400,000 tonnes of mutton and lamb were exported in the first decade of the century. While two-thirds of frozen mutton and lamb was exported to the United Kingdom, South Africa (Cape Colony and Natal) purchased over 50% of frozen beef exports in the early 1900s, the Philippines around 20%, and the United Kingdom about 15%. There were substantial falls in beef, mutton and lamb exports in the years after 1901, as the Great Drought impacted on stock numbers and then producers began herd rebuilding.

New South Wales and Victoria dominated the dairy industry. Dairy herds were generally very small by today's standards, about 20 milking cows, and most cows were hand milked. In 1901 there were about 1.2 million dairy cattle, producing 46,000 tonnes of butter and 5,000 tonnes of cheese, of which about a quarter of each product was exported.

In the 1901–02 season, wheat accounted for 2 million hectares of the area under crop, followed by oats (187,000 hectares), maize (119,000 hectares), and barley (30,000 hectares). The areas planted to orchards and fruits, sugar cane and potatoes amounted to 59,000 hectares, 54,000 hectares and 44,400 hectares respectively. Most cropping was done in the eastern States, but by 1904–05 Western Australia had started to emerge as an important grain grower. Other broadacre crops, such as grain sorghum, canola, field peas and safflower, had not yet made an appearance.

Attempts had been made to grow cotton and coffee, but without much success. Commonwealth Year Book No. 1 commented: "...Hopes are entertained that with the invention of a mechanical device for picking of the cotton the industry will become firmly established, since the soil and conditions appear eminently suitable for the growth of this crop".

The clearing of extensive plots of land was also beginning to take a toll in some areas. The practice of crop and burn, which had proven successful in the Wimmera, was not suited to the Mallee; it led to soil exhaustion and poor crops, followed by more intensive cropping which, within a relatively short time, turned extensive areas of previously vegetated land into sand dune deserts. Rabbit numbers were also beginning to build up, and by the outbreak of World War I the rabbit had already had a significant impact on the carrying capacity of land in Victoria and New South Wales, spreading rapidly from Geelong.

Australia already had a significant vineyard and wine making industry, and irrigation in the Murray–Darling basin led to large increases in grape growing over the later decades. The main destinations for wine exports were New Zealand and the United Kingdom. In 1901, 23.9 million litres of wine were produced, of which 3.9 million litres were exported. Grapes were also grown for eating and drying, with around 23,000 tonnes of grapes produced annually for table consumption in the early years of the century. South Australia and Victoria were the main wine and grape producing States, followed closely by New South Wales.

Potatoes were, as now, the main vegetable crop grown, with 44,700 hectares sown at the turn of the century. Planting and harvesting were originally done by hand, and involved strenuous labour. Horses were used in ploughing and mounding the soil along the potato rows. Harvesting was done using a fork, and the potatoes were bagged for transport to market by horses or bullocks. At the end of our century machine planting and harvesting have replaced the horse and fork, and the bag has been replaced by bulk handling facilities. New varieties and irrigation have pushed yields up to 35–40 tonnes per hectare, compared with 5–8 tonnes per hectare at the beginning of the century.

Sugar cane growing made its appearance on the Australian agricultural scene in the early 1860s in Queensland, with 20 acres (8 hectares) of cane recorded in 1862. The following year a small area was grown in New South Wales, and by the turn of the century sugar cane growing had become established as a significant agricultural activity. The industry used slave labour known as ‘Kanakas’, people uprooted from the Pacific islands and brought to Australia to work as cheap labour on the sugar farms. Commonwealth Year Book No. 1 states, in relation to sugar bounties, “...The provision of bounties or similar aids to the

sugar-growers of the Commonwealth early occupied the attention of the Commonwealth Parliament, the object in view being that of assisting the industry whilst at the same time diminishing the employment of coloured labour in connection therewith...”. An additional payment was provided on all sugar cane delivered that had been solely grown and harvested by white labour.

At the 1901 Population Census, almost 30% of the male population and just over 10% of the female population (23.4% of the total population) were employed directly in the agricultural and pastoral industries. At the census of 1911, 21.7% of the population were recorded as employed in these industries. These figures are not complete as the Aboriginal population was not enumerated in the Census. Large numbers of the Indigenous population worked as stockmen, stockwomen, and in other support roles on the big pastoral spreads, and made a significant contribution to Australian agriculture. Queensland’s Chief Protector of Aborigines from 1914 to 1942, J.W. Beakley, stated: “The real pioneers were Aboriginal women, because without them, the white men could not have carried on”, and that the pastoral industry, which was “perhaps the most important asset of this vast Commonwealth”, would be in a sorry plight “...if deprived of its native labour in outback places where white labour is not only difficult to obtain but often inferior in quality”.

## The 1920s and 1930s

By the early part of the 20th century Australia’s agricultural production had rapidly increased as a result of new and improved technology, including more productive grain varieties and advances in livestock breeding. Output expanded well beyond the needs of the Australian population, and Australia developed to become one of the world’s major food exporters. Over subsequent years a succession of governments, in an effort to support this growth, have provided various assistance schemes to the primary production sector.

The first of these support schemes aimed to support and encourage burgeoning industries. The Bounties Acts and Amendments were designed to encourage the manufacturing of certain items. In 1907 bonuses were paid on the production of a number of agricultural products, such as cotton, fibres, rice, coffee, tobacco and dried fruits. Bonuses were extended across other agricultural industries, and in 1924 they included

the production and export of canned apricots, peaches, pears and pineapples. These Acts worked by enabling a government-funded bounty to be paid to each manufacturer based on the quantity of produce manufactured.

Following the end of World War I, Australian agriculture expanded, helped by the removal of wartime restrictions and a return to pre-war shipping and export patterns. The Government continued with its objective of establishing more of the population on the land and breaking up some of the vast 'squatter' holdings. As an extension of governments' closer settlement policies pursued since the early 1900s, new areas of agriculture were established to provide returned soldiers with both a place to live and an occupation. Unfortunately insufficient use had been made of the expert technical and scientific knowledge already developed across Australia; as a result, some of the land acquired and broken into smaller allotments was not suitable for small scale farming. In addition many of the settlers, despite great effort, were unsuited to the arduous tasks involved. Establishing more people on the land did not necessarily mean greater agricultural production, and by 1927 the losses accumulated by 37,561 soldier settlers amounted to 23.5 million pounds.

A number of good seasons in the early 1920s resulted in a record high 14.4 million head of cattle. This coincided with a low beef price in England, making it financially impossible to continue the export trade established by Australia. In 1922 the Government intervened and the Meat Export Bounties Act was passed. This established a bounty payment on any exported beef, and on live beef exported for slaughter, and had the desired effect of not only supporting the primary producer, but also halting the likely closure of a number of meat works across the country.

Another major industry receiving support at the time was the dairy industry. In 1926 a scheme was introduced to offset a low export price for butter, by establishing a high home price maintained by heavy duty on imports. A similar arrangement was established for sugar growers faced with low world prices at the end of World War I.

Prosperity within the wheat industry also fluctuated. In 1915–16 the area planted to wheat increased by 1.2 million hectares in response to a 'war effort' request by the Government, and reached a record high of 5 million hectares. Unfortunately this planting was followed by a year

of low commodity prices, and subsequent plantings dropped to pre-war levels of around 2.6 million hectares. This forced the Government to provide a remuneration guarantee on wheat prices, which renewed confidence in the industry and resulted in an increase of 1.1 million hectares in the area planted to wheat in 1920–21. Of the 4.5 million hectares sown to the major crops in 1922, wheat accounted for about 88% by area.

To help in the development of new industries, bounties were applied to the export of some goods and import tariffs applied to others. Within the viticulture industry the use of phylloxera resistant root stock resulted in an increase in both the area planted to grapes and the production from vines. However wine production did not increase as rapidly, due largely to limited local consumption and the inability of the industry to find strong export markets for new wines. To improve this situation a Commonwealth bounty was provided in the 1920s on the export of wine of specified strength.

By this time rice had been grown successfully in the Murrumbidgee Irrigation Area. As the United States had established a number of new outlets in the East and the markets appeared lucrative, in 1924–25 the first attempt was made to grow rice commercially. The Government, keen to support growers, applied a custom duty on the import of rice.

Unlike the industries identified above, wool continued as a valuable commodity after the War, with most production exported and only 8% used by Australian mills. By the mid 1920s the United Kingdom, which had an established and expanding textile industry, was purchasing about 50% of total wool exports, up considerably on the pre-war figure of 30%. In 1924 wool exports accounted for 78% of all pastoral export income. By 1928–29 Australia had 103 million head of sheep and produced 440,000 tonnes of wool, accounting for 17% of the world's sheep population and 25% of the wool supply. This represented half of the world's merino wool production.

In 1930 the world wide Depression resulted in the closure of Australian factories and whole industries, and seriously affected commodity prices. The rate of unemployment rose to a high of 30% in 1931–32. Large numbers of families moved from the cities to the country, where they worked as unpaid labourers in return for shelter and the opportunity to grow and catch their own food.

Australian agriculture experienced a severe setback during the Depression, with the price received for commodities falling drastically. From 1932 to 1936 the Government provided assistance to wheat farmers until the price of wheat finally climbed in 1935–36, due to a decline in world production. Australian plantings increased again, and while Australia produced 3–4% of the world's wheat, it accounted for 18% of total world exports, reflecting the high exposure of Australian farmers to international markets.

In spite of the difficulties experienced maintaining trade during both the War and the Depression, the value of Australian exports increased significantly in the first four decades of this century. Compared with 1913, in 1939–40 the value of agricultural exports increased by 151% for agricultural produce, 88% for pastoral produce, 411% for dairy and farmyard produce, 24% for mines and quarries and 494% for the manufacturing group. Within specific industries, dairy and farmyard produce increased from 5% of total exports in 1913 to 12% in 1939–40, agricultural exports increased from 13% to 16%, but pastoral exports fell from 51% to 47%.

The outbreak of World War II in September 1939 presented a new challenge for the industry, and again had a detrimental effect on Australian agriculture trade. Farmers became isolated from world markets, and heavy restrictions were placed on the use of superphosphates and other supplies. Labour was also seriously affected, and during the war years much of the farm management and labour fell to women, while fathers and husbands were fighting overseas.

## The 1940s and 1950s

The governments of both the United Kingdom and Australia designed policies to maintain the agricultural production necessary to feed and clothe service personal during the War. A number of restrictions were placed on the civilian purchase of goods by rationing commodities like meat, sugar and butter, and other industries were encouraged to expand. This particularly applied to the cotton industry, which until then had been producing about one-third of Australia's cotton requirement. As a wartime measure, the area planted to cotton increased from an average of 15,000 hectares per annum in the ten years to 1929–30, to around 24,300 hectares in the late 1930s and early 1940s. Following the War, the area planted dropped to an average low over the next five years of 4,800 hectares.

Wartime shipping restrictions resulted in considerable disruption to trade. As half of the apple and pear production was exported, the Government financed an Apple and Pear acquisition scheme. At the same time the purchase of dried fruit was commissioned by the United Kingdom Government. Wine, which was not included among the commodities sold by contract to the United Kingdom as a war-time emergency measure, was seriously affected by the loss of export trade, but local consumption increased due to the restricted availability of beer and the presence of large numbers of overseas service personal based in Australia. To meet both the requirements of the United Kingdom, Australia and the allied services, control of the *Meat Export Control Act 1935–46*, which allowed the export of meat under licence, was taken over by National Security Regulations. In addition, as part of a wartime agreement, the United Kingdom contracted to handle the sale of all Australian wool for the duration of and one year following the War.

During the World War II, the Australian Government acquired all wheat, and distributed net proceeds to growers on a pooling basis. It also provided a subsidy on the purchase of wheat for stock feed, designed to reduce the surplus created by shipping difficulties and to increase the production of eggs and pigs. Despite these efforts, from 1939 the area of wheat planted declined, and continued to fall for every year of the War until the drought of 1944–45, by which time the surplus of unsold wheat had diminished and all available stocks were sold and exported to war-stricken Europe and Asia. The area planted to grain then began to increase, and Australia continued to produce about 3% of the world's wheat and provide between 15% and 20% of total world exports of wheat. By then, however, Canada had developed into a major wheat exporter, providing 60% of net world exports. Growers, wanting to avoid the depressed conditions of the 1930s, saw that if one body could be developed to sell wheat, Australia would have more bargaining power on the international market. In 1948 a national marketing scheme, the Wheat Stabilisation Plan, started with the first plan covering the five year period 1948–49 to 1952–53.

By 1955–56 Australia's wheat production was 5.4 million tonnes, 720,000 tonnes greater than the average for the ten years ending 1938–39. Large storage facilities for wheat were built during the early 1950s to accommodate this high production. This situation changed quickly when, in 1957–58, drought resulted in a sharp fall in



wheat supplies, and a need to import stocks to meet local demand. This was the second time since 1902 that it had become necessary for Australia to import wheat.

Wool sales had also been affected by government intervention during the War. By 1945, as a result of the contract to purchase wool during the War, the United Kingdom had developed a huge stockpile amounting to about two years' consumption. It was estimated that, at the current level of production and consumption, it would take 12–13 years to deplete this stockpile. In an effort to assist this process, and reduce price fluctuations which had plagued the industry in the pre-war years, it was decided to establish a floor price for the sale of wool, and offer for sale both the current year's clip and some selected lines of the stockpile. This was operated by the Joint Organisation involving the United Kingdom, New Zealand, Australia and South Africa. With the return to this regulated auction system, the price of wool rose and continued to do so, resulting in the disposal of a large part of the wool that had been stockpiled over the war years. The Joint Organisation was abolished in 1951. Prosperity in the wool industry peaked in 1950–51 when the average greasy wool price reached 144.19 pence per pound, (equivalent to around \$37 per kilogram in today's prices, compared to around \$4.50 per kilogram being achieved now), nine times greater than the 1945–46 United Kingdom contract price, and almost thirteen times greater than the average for the ten seasons ending in 1938–39 (10.39 pence per pound). This increase in price has been attributed to the demand for wool generated by the Korean War.

During this period Australia was said to be “riding on the sheep's back”. Whereas in 1945–46 the gross value of wool production represented 17% of the total value of production of all agricultural industries, in 1950–51 this rose to 56%. The increase in the price of wool led to a rise in sheep numbers, from 96 million in 1946 to 113 million in 1950. As could be expected, the period of exceptionally high prices did not last, and returns for wool quickly fell away. In 1951–52 they were half the returns of the previous year, and by 1955–56 the price of wool was the lowest since 1948–49. By 1966–67 the gross value of wool production had declined to 21% of the total value of production for agricultural industries.

In real terms, farm incomes rose more slowly than wages, and the movement away from the land continued, resulting in the proportion of total employed males and females who were employed on farms dropping from 19% in 1933 to

14% in 1954 (as for previous years, these values do not include the contribution made to the industry by full blooded Aboriginal people, who contributed significantly to the cattle industry in Queensland and the Northern Territory). While fewer people remained on the land, production increased, largely due to technological progress. The growth of mechanisation in agriculture expanded at a considerable rate following the war, thanks both to improvements in technology and supplies. The number of tractors on rural holdings rose from around 42,000 in 1939 to 202,000 in 1956, almost fourfold, whereas between 1938–39 and 1955–56 the number of rural holdings fell slightly, from 254,000 to 253,000.

In 1945–46 there were 4 million hectares of sown pasture, up considerably on 2.1 million hectares in 1929–30. Along with the productivity increase resulting from improved pastures, the carrying capacity of properties increased considerably from the late 1940s following the introduction of the myxomatosis virus, which drastically reduced the rabbit population.

## The 1960s and 1970s

The drought of 1958 lasted until 1968, the most severe since 1903. During this period crops and pastures failed, and sheep and cattle numbers in various areas were reduced. Water storages, particularly in New South Wales, were so reduced that irrigation was restricted. The drought developed in two parts which overlapped in time and area. Central Australia and vast areas of adjacent Queensland, South Australia, Western Australia, New South Wales, and northern Australia were affected between 1958 and 1966. South-eastern Australia experienced severe drought between 1964 and 1968. While rain in 1966 broke the drought in central Australia and improved the situation in much of South Australia and New South Wales, it was not sufficient and conditions deteriorated again in 1967. Despite the harsh conditions, the economic loss was less severe than would be expected. This has been attributed to the relieved pressure on grazing country resulting from the greatly reduced rabbit numbers and the improved transport systems facilitating the purchase and transport of fodder from less affected areas to the areas of greatest need, and the movement of stock to less affected areas for agistment.

Between 1960 and 1970, prices of the three main commodities, wool, wheat and meat, fluctuated at similar rates. During this period, sheep numbers expanded from 155 million to 180 million and beef cattle numbers from 12 million to 18 million, and the area of wheat sown grew from 4.9 million to 9.5 million hectares, helped by opening up 3 million hectares in Western Australia.

The destination of agricultural products had changed considerably since 1947, when the United Kingdom imported one-third of all Australian exports, including 80% of all beef and 90% of all butter. By the mid 1980s, the United Kingdom was taking less than 2% of Australian rural exports, the major importers being Japan 21%, the Middle East 15%, North America 12%, the European Economic Community (EEC) 11%, Eastern Europe 9%, South East Asia 9% and China 5%.

In the 1960s Japan and the European Common Market had surpassed the United Kingdom as the largest purchasers of Australian wool. Unfavourable conditions in these countries, however, saw the price drop significantly in 1971 to about 50% of its 1964 level. This led to the creation of the Australian Wool Commission, with the role of supporting the sale of Australian wool by setting a floor price and stockpiling any unsold wool. This wool was then resubmitted for sale when wool prices improved. The scheme operated very successfully in the early years of its establishment, and the Commission was able to dispose of all stockpiled wool during the periods of high wool prices in 1974 and 1979.

Since 1958–59 the USA had surpassed the United Kingdom as the principal market for Australian beef exports; by 1966–67 the total value of beef and veal shipped to these two countries was \$145m and \$29m respectively. World wide demand for beef saw cattle prices increase by 40% between 1969 and 1974, but by 1975 world overproduction and political decisions in the USA and Japan led to the collapse of world prices and the subsequent decline of beef exports from Australia. Prices remained low until 1979, when new markets were established in Eastern Europe and the USSR and new quotas negotiated with the USA.

While wheat prices had been relatively stable since the early sixties, in 1973 demand increased in the USSR, and China, resulting in prices almost doubling, and they remained high until the early 1980s. This led to an expansion in the area sown from 9.4 million hectares in 1970 to 12.9 million hectares in 1984.

In 1966–67 the United Kingdom was still the principal importer of Australian butter, taking 78% of exports; however Japan had become the principal importer of Australian cheese, with 37% of Australian exports. The trade in Australian butter was severely affected when Britain entered the EEC in 1973. Dairy herd numbers, which had totalled 4 million, fell to 2.4 million by 1988. Butter exports dropped from 79,000 tonnes in 1973 to a low of 7,000 tonnes in 1981–82. Thankfully new markets were established in Asia and the Middle East, which provided relief for the industry and boosted trade to over 40,000 tonnes in 1988. However this rationalisation of the industry meant the end of the small dairy farmer in Australia.

The Australian fruit industry was similarly affected by Britain's entry into the EEC. Between 1975 and 1990, Australia's annual apple exports fell from about 86,000 to 27,000 tonnes. Extensive 'tree pull' schemes were instigated to rapidly reduce the level of fruit production, in an attempt to prevent a glut of product on the market. Since then, new markets have been developed in South East Asia which have proved lucrative, and tree plantings have increased.

As new markets for commodities became identified and established, there was some slow expansion into new agricultural industries. Of 16 million hectares sown in 1966–67, wheat accounted for 53%, oats 11%, green fodder 14%, hay 9%, barley 6%, and sugar cane 1.4%. Sorghum had established itself as more drought and frost resistant than maize and became a popular alternative, accounting for 1.3% of the area sown, followed by maize (0.5%), sunflower (0.2%), and fruit and vegetables 1% each. The balance was sown to rice, cotton, hops, peanuts, tobacco, vineyards and other unspecified crops. Safflower was emerging as a viable crop, the area planted increasing from 2,000 hectares in 1962–63, to 38,000 hectares in 1966–67.

During the 1960s and 1970s, the long term effects of stocking rates and cultivation techniques on land degradation were scientifically documented and publicly debated. The dryland salinity problems of Western Australian wheatlands and the rapidly increasing water tables of the Murray and Murrumbidgee irrigation areas were two regions of particular concern. The identification of a number of land degradation issues relating to poor farming practices led to primary producers analysing the long term effects of individual management practices. Improvements in farming techniques were encouraged, and practices established to halt and, where possible, reverse the damage that had already occurred to much of the area currently farmed in Australia.

## The 1980s and 1990s

By the mid 1990s Australian agriculture contributed only around 3% to GDP, down from 15–20% in the early 1950s. The rural sector's contribution to total exports had dropped from around 75% to 28%. Agriculture now accounts for less than 5% of Australia's employment, down significantly from 10% in the 1950s. The old saying that Australia "rides on the sheep's back" has long ceased to describe Australia's economy, or even Australian agriculture. Mining, manufacturing, service industries and construction have outstripped agriculture in relative importance to the economy.

The other notable feature of Australian agriculture at the end of the century is the declining importance of small farm operators. Roughly half the farm establishments contribute less than 20% of commodity output. In many of the major broad acre crops (wheat, barley, grain sorghum, lupins, etc.), the contribution of half the establishments is well under 10%, as it is for the dairy industry. At the start of the century the State Governments were attempting, through closer settlement schemes, to get more population onto the land and to create a small farmer class. At the end of the century, farm economics are resulting in the opposite. The small farms are giving way to larger and more viable economic farm units. In 1996–97, about one-tenth of farm businesses were responsible for almost half of farm business turnover and cash operating surplus.

Over the last 10 years, wool producers have had to face significant changes in the industry, including a decline in the underlying demand for wool, changes to wool marketing arrangements, disruption of traditional international markets, and strong competition from competing fibres, which have had a devastating effect on the profitability of all sectors of the wool industry. In 1989–90, before the wool price collapsed from an average greasy auction price of around 600c/kg to an annual low of 314c/kg in 1992–93, the sheep industry had contributed 20% of all farm business turnover, almost 22% of agricultural value added, and around a fifth of cash operating surplus generated in the agricultural industry. Since the wool price collapse, the industry's contribution to agricultural turnover has fallen to about 6%, value added to 7% and cash operating surplus to 5%. Australian wool production has fallen by 35% since 1990, to around 650,000 tonnes in 1997–98.

In 1996–97, 'grain' and 'grain-sheep/beef' combinations accounted for around 37% of turnover, similar to the proportion at the start of the 1980s. Fluctuations in these industries' contribution and performance are tied to climatic conditions and market forces. In 1994–95 the 'grain industry' accounted for 12% of agricultural business turnover. The previous year it had been 16%, but in 1995–96 it was 20%.

Across all agricultural industries the relative importance of inputs into agriculture have remained stable over the past two decades. Marketing expenses (e.g. commission, packaging, freight and cartage, insurance, handling costs), and wages are the two main operating costs. Marketing expenses have generally been 11–14% of total operating costs. Wages have remained at about 13%, but declined slightly to 11.5% during the mid 1990s. Despite significant price increases, fuel and fertilisers have remained at around 5% and 7% respectively of total farm operating costs.

The most variable input, in terms of relative importance, has been interest paid. In the late 1970s it was about 8% of farm operating costs, rising to about 13% in the late 1980s, a reflection of the overall upward movement of interest rates in the economy, accompanied by increasing farm debt. The 1990s have seen a fall in rates, and in interest costs as a proportion of farm input costs to about 8%.

The adoption of new technology is now more important than ever as farmers try to maintain levels of profitability in the face of rising costs, worsening terms of trade, and restrictions on land use and farming practices imposed by governments as society becomes more aware of the need to develop sustainable farming practices. Satellite technology has been adopted in a number of ways, such as using satellite imagery when making decisions on land use, satellite ground positioning systems to guide spraying and cultivation equipment, and satellite communication technology for controlling equipment in remote areas, such as pumps and generators. PVC piping is used increasingly to pipe water, previously channelled over great distances through open bore drains in the inland areas, as more efficient use of artesian water becomes necessary.



The majority of agricultural commodity production is exported. However, the relative importance of agriculture as an export earner for the country has undergone considerable decline since the 1950s, when it generated 75–80% of the value of Australian merchandise exports. This decline in relative importance reflects the diversification of the Australian commodity export base, particularly in mining and manufacturing.

In addition to changes in the export commodity mix, there have been significant changes in the makeup of agricultural commodities exported. Wool has experienced a decline in demand as well as a fall in price; grain exports, notably wheat and barley, have also had to compete against subsidised production by European Union countries and US agricultural production enhancement programs. The same situation has applied to dairy output (butter, cheese and dried milk products). The citrus fruit industry has also faced considerable competition from large plantations in South America.

There has been considerable diversification in the mix of agricultural commodities exported to the ASEAN (Association of South East Asian Nations) group of countries and to other Asian countries such as China, Korea and Japan. The ASEAN countries have developed as a significant destination for export of apples and dairy products. Between 1990–91 and 1996–97, the trade in live cattle, particularly to the Philippines and Indonesia, expanded enormously, though more recently exports to Indonesia have been affected by the Asian economic crisis. There has also been a limited opening of the Japanese market to Australian rice.

In June 1998 agriculture accounted for 4.4% of the employed population. People employed in agriculture totalled 375,000, of whom 62% were proprietors and partners, and 38% paid employees. These figures understate the relative importance of agriculture in terms of total employment generated by the sector. Services to agriculture (veterinary services, contract harvesters, rural advisers etc) employ an additional 27,000 people. Food processing establishments, such as abattoirs, wine making establishments, flour millers and fruit processors,

also employ significant numbers of people. Similarly, the marketing and transport of agricultural produce generate significant employment which is not attributed to the agriculture industry. However, the importance of agriculture as an employer is far below that of the start of the century, when around 30% of employed males and 10% of employed females worked directly in the agricultural and pastoral industries.

The age structure of persons employed in agriculture is significantly different from that in other industries. According to the 1996 Census of Population and Housing, the median age for all persons employed in agriculture was 44 years, substantially higher than 38 years for all persons employed in all industries. The median age for males employed in agriculture was 43 years; for females it was 46 years. Both were higher than in all industries combined (males 38 years, females 37 years). The upward movement in the median age of farmers reflects fewer young people entering agriculture to take the place of ageing workers. In the early 1950s almost 11% of persons employed in agriculture were under 20; 21% of males and 15% of females employed in agriculture were aged 20 to 29. By the mid 1990s these proportions had fallen to 16% and 11% respectively. At the other end of the age scale, the proportion of males aged 60 and over had gone from 13% at the 1954 census to 17% at the 1996 census, and for females from 14% to 16%.

This article has shown that, while Australian farmers have enjoyed periods of economic boom and prosperity, they have also experienced times of extreme hardship, brought about by an unreliable climate and volatile market forces. Currently, with Australia's high exposure to international markets, and a domestic environment in which farmers are expected to operate without government assistance, many farmers are experiencing financial pressure to restructure their operations. This will require, in many cases, a change in the mix of activities on farms, and even an expansion into new agricultural industries. While innovation, planning and hard work will improve the circumstances of many individual farmers, agriculture is unlikely to again reach the prominent place it held in the Australian economy up to forty years ago.

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## Introduction

This chapter outlines the main features of two important primary industries in Australia, forestry and commercial fishing.

The forests and wood products industries based on native and plantation forests contribute substantially to Australia's economy, accounting for about 2% of GDP and employment of over 60,000 people. While the value of exports and imports of forest products is substantial (about \$1.2b and \$2.4b respectively in 1997–98), Australia is a net importer of forest products.

Australia's fisheries resources are diverse. Over 3,000 species of marine and freshwater fish, and at least an equal number of crustacean and mollusc species, occur in and around Australia. Less than 600 of these are commercially exploited. However, almost all the major known fish, crustacean and mollusc resources are fully exploited. Aquaculture, or 'fish farming', is an alternative to harvesting the naturally occurring fish stocks and has considerable potential as a means of ensuring sustainability of harvesting yields.

The gross value of Australian fisheries production was about \$1.9b in 1997–98, of which aquaculture accounted for 26%, up from 17% in 1989–90. Exports and imports of fisheries products were valued at \$1.5b and \$0.8b respectively in 1997–98, making Australia a net exporter of these products.

## Forestry Introduction

Forests are an important sustainable natural resource providing a wide range of indispensable products and benefits to the community.

Forest vegetation cover protects the soil from water and wind erosion, reduces flooding and siltation of water bodies and maintains water quality. Forests provide habitats for a wide variety of native animals and plants. They also act as a sink to absorb greenhouse gases.

The forests and wood products industries based on native and plantation forests contribute substantially to Australia's economy, especially to employment in regional areas. Forests are also

valuable ecosystems providing a gene pool of great diversity for scientific investigation; a source of honey, oils, gums, resins and medicines; and a resource base for education, tourism, recreation and other purposes. Forests cannot necessarily provide for all uses at the same time, but careful management will ensure that forests provide multiple benefits in the long term for the Australian community.

Farm forestry is becoming increasingly important as a potential commercial source of wood. A broad range of programs has been implemented by governments and private organisations to promote tree planting on Australian farms.

## Forest estate

### Native forest

Native forest is defined by the National Forest Inventory (NFI) as "an area, incorporating all living and non-living components, dominated by trees having usually a single stem and a mature or potentially mature stand height exceeding two metres and with an existing or potential crown cover of overstorey strata about equal to or greater than 20%". This definition includes Australia's diverse native forests, regardless of age. It is also sufficiently broad to encompass areas of trees that are sometimes described as woodlands.

Based on this definition, the total area of native forest at 30 June 1997 was estimated at 155.8 million hectares (table 16.1), which is about 20% of Australia's land area.

The above definition, based on the National Forest Policy Statement (NFPS) agreed to by the Commonwealth Government and the State and Territory Governments in 1992, has been modified to reduce uncertainty relating to crown cover and height. The NFPS definition refers to 'usually' single stemmed trees, which recognises that mallees, Australia's multi-stemmed eucalypt trees, must be included. To make this possible, the lower tree height limit has been set at two metres, a reduction from five metres. The full definition, which requires the vegetation to be of tree formation, excludes shrublands even if they are higher than two metres. This reduction in the minimum height makes no significant difference to the total area of forest, adding only about 4–5% to the total.

**16.1 NATIVE FOREST AREAS, By Dominant Canopy and Tenure—30 June 1997**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.	'000 ha.
<b>CLASSIFIED BY DOMINANT CANOPY SPECIES</b>									
Eucalypt									
Tall	2 097	2 825	1 126	2	171	250	—	72	6 543
Medium	12 842	2 986	28 511	497	20 815	1 901	23 849	48	91 450
Low	1 163	76	2 340	316	3 431	86	7 288	—	14 700
Mallee	1 827	958	—	4 005	4 973	—	—	—	11 764
Unknown	—	—	6	—	—	—	—	—	6
<i>Total eucalypt</i>	17 929	6 845	31 984	4 820	29 390	2 237	31 138	120	124 463
Acacia	944	17	4 603	307	3 986	3	2 439	—	12 298
Melaleuca	202	18	2 643	2	155	—	1 072	—	4 093
Rainforest	209	3	2 567	—	7	545	252	—	3 583
Casuarina	802	—	62	147	40	(a)	—	—	1 052
Mangrove	7	5	398	20	173	—	442	—	1 045
Callitris	382	37	309	139	—	—	—	—	867
Other	312	360	6 490	63	1 048	118	43	—	8 435
<b>Total</b>	<b>20 787</b>	<b>7 285</b>	<b>49 056</b>	<b>5 499</b>	<b>34 800</b>	<b>2 904</b>	<b>35 385</b>	<b>120</b>	<b>155 835</b>
<b>CLASSIFIED BY TENURE</b>									
Multiple Use Forest(a)	3 095	3 346	3 983	27	1 612	1 285	—	5	13 351
Nature Conservation Reserve(b)	3 060	2 710	2 870	1 252	4 364	523	2 709	93	17 580
Other Crown Land(c)	605	165	1 051	12	13 206	296	258	2	15 597
Leasehold(d)	5 966	—	23 996	1 866	14 025	—	20 236	13	66 103
<i>Total public</i>	12 726	6 221	31 900	3 157	33 207	2 104	23 203	113	112 631
Private	8 046	1 038	17 111	2 327	1 502	801	11 187	7	42 018
Unresolved tenure	15	26	44	15	90	—	995	—	1 186
<b>Total</b>	<b>20 787</b>	<b>7 285</b>	<b>49 056</b>	<b>5 499</b>	<b>34 800</b>	<b>2 904</b>	<b>35 385</b>	<b>120</b>	<b>155 835</b>

(a) Publicly owned land managed for multiple use including wood production. (b) Public land on which wood production is excluded (National Parks, etc.). (c) Reserved areas of educational, scientific and other public institutional land, including easements, defence land, and other minor tenure classifications. (d) Crown land where the right to harvest or clear land must be approved by State/Territory Governments. Often known as pastoral leases.

Source: *National Forest Inventory, 1998.*

There is currently no national standard used for mapping tree height. Height information has either been collected or reclassified by the NFI into three categories:

- low: 2 to 10 metres;
- medium: greater than 10 metres, up to 30 metres; and
- tall: greater than 30 metres.

Of the 155.8 million hectares of native forest at 30 June 1997, 112.6 million hectares (72%) were publicly-owned and 42 million hectares (27%) were on private land. Of the publicly owned forests, 17.6 million hectares (16%) were in Nature Conservation Reserves, 13.4 million hectares (12%) were managed by State forest authorities for various uses, including wood production, 15.6 million hectares (14%) were on other Crown land, and 66.1 million hectares (59%) were on leasehold tenure. Taking forested

leasehold land together with private freehold forest, some 69%, or 108 million hectares, of Australia's forests were under private management.

### Plantations

The NFI's first report of the National Plantation Inventory (NPI) of Australia (1997) brought together comprehensive information on Australia's standing large-scale plantation forest resources at regional and national levels. The NPI project was established to allow up-to-date quantitative reporting of Australia's plantation resource (both hardwood and softwood) based on growers' information. This includes location, area, species and age of plantations. An annual update process has now been implemented, with figures due for release each March and a comprehensive report produced five yearly, the next one due in 2000.

Plantations cover a small proportion of Australia's land. The most recent plantation figures (June 1999) indicate that Australia had an estimated 1.22 million hectares of standing plantations planted to the end of June 1998 (table 16.2). Of these, 931,440 hectares were softwood (mostly *Pinus radiata*) and 291,010 hectares were hardwood (mostly *Eucalyptus*) species. New areas planted to plantation annually increased from 30,296 hectares planted in 1995 to 60,491 hectares planted in 1998.

The 3-year National Farm Forest Inventory (NFFI) program, established by the NFI and the Commonwealth Farm Forestry Program in 1998, will report on farm-forest plantation resources. Together, the NFFI (farm forest plantations) and the NPI (large-scale plantations) will provide a comprehensive picture of the plantation resource in Australia.

Under the NFPS, Australia is committed to expanding its plantation estate to provide additional resources for the forestry sector. The Commonwealth Government has supported the expansion of Australia's plantation resource base for many years. For instance, the National Afforestation Program (NAP) was established in 1987–88 as a three year grants program to stimulate an expansion in the commercial hardwood timber resource and to assist in land rehabilitation through broadacre commercial plantations (including farm forestry).

The Commonwealth Government has continued to support and stimulate commercial plantation development on cleared agricultural land through the Farm Forestry Program (FFP) and the Community Rainforest Reafforestation Program (CRRP). The Government announced the implementation of a range of measures to encourage plantation and farm forestry development in the Wood and Paper Industry Strategy, issued in December 1995.

In October 1997 the joint government/industry initiative 'Plantations for Australia: the 2020 Vision' was released. The national initiative,

which aims to treble Australia's forest plantations estate by the year 2020, will enhance growth in Australia's forest industry and the contribution made by plantations to the Australian economy, rural communities and regional development.

## Wood and paper products

Australia's wood and paper products industries are important components of Australia's primary and secondary industries. They are particularly important in providing economic development and employment in many regions of rural Australia. The industries include hardwood and softwood sawmilling, plywood and panels manufacturing, woodchip production and export, and the pulp and paper industries. Nearly 62,000 people were directly employed at the end of June 1998 in growing and harvesting of wood and the manufacture and processing of wood and paper products (table 16.3). The wood and paper products industries contribute about 2% to Gross Domestic Product. In 1997–98, the value of turnover in the wood and paper products industries was \$11.5b, of which wood processing establishments (log sawmilling, timber dressing and other wood product manufacturing) contributed turnover of \$6.3b.

Preliminary estimates for 1997–98 show that total roundwood removed from forests increased by 4% to nearly 20.3 million cubic metres. The removal of broadleaved wood (primarily from native forests) increased by 4% in 1997–98 to 9.5 million cubic metres and the removal of coniferous wood (mainly from plantations) rose by 3%.

In 1997–98, the value of exports of forest products totalled \$1,247m, of which 52% were woodchips and 30% paper and paperboard products. In that year the value of imports of forest products was \$2,710m, of which 52% were paper and paperboard products and 16% sawnwood. This indicates a trade deficit in forest products of \$1,463m in 1997–98. Australia produces 83% of its sawn timber needs, of which native forests provide about 36%, with the balance coming from softwood plantations. Imported sawn timber is mostly Douglas Fir from North America, and *Radiata Pine* from New Zealand.

**16.2 PLANTATION AREAS, Classified by Species Type—30 June 1998**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	ha.	ha.	ha.	ha.	ha.	ha.	ha.	ha.	ha.
Softwood	227 885	228 680	173 656	117 486	92 194	71 102	5 235	15 202	931 440
Hardwood	39 623	40 870	8 414	3 469	120 110	78 024	501	—	291 010
<b>Total</b>	<b>267 508</b>	<b>269 550</b>	<b>182 070</b>	<b>120 955</b>	<b>212 304</b>	<b>149 126</b>	<b>5 736</b>	<b>15 202</b>	<b>1 222 451</b>

Source: National Forest Inventory, 1998.



The hardwood and softwood sawmilling industries comprise mills of various sizes which process wood into sawn timber and other products such as veneers, mouldings and floorings. The hardwood mills are generally small scale and scattered. The softwood mills are generally of a larger scale and more highly integrated with other wood processing facilities. Australia's production of sawn timber increased by 5% in 1997–98 to 3,649,000 cubic metres (table 16.4), of which 64% was softwood.

Other value added timber products include plywood, wood-based panels and reconstituted wood products. Australian wood-based panels include particleboard, medium density fibreboard, and hardboard made from softwood or hardwood pulp logs, sawmill residues or thinnings.

Pulp and paper mills use roundwood thinnings, low quality logs, harvesting residues and sawmill waste, and recycled paper and paperboard, to produce a broad range of pulp and paper products. Around a third of domestically consumed paper is imported. The majority of paper products produced domestically are

packaging and industrial papers, newsprint, printing and writing papers, and tissue paper. Each requires different inputs and technologies. Recycled paper now contributes about half the fibre used in the production of paper and paperboard.

Woodchips are mainly used in the production of paper and paper products, and the woodchip export industry uses sawmill residues and timber which is unsuitable for sawmilling and not required by the Australian pulp, paper and reconstituted board industries. Before the advent of the woodchip export industry, much of this material was left in the forest after logging. Considerable quantities of sawmill waste material, which would otherwise be burnt, are also chipped for local pulpwood-using industries and for export. Up until 1990–91, at least 95% of woodchips exported from Australia had been eucalypt, but since then increasing quantities of softwood woodchips have become available from pine plantations. In 1997–98, 24% of the total value of woodchips exported was from softwood woodchips. See also the section *Sustainable management of forests* in Chapter 14, *Environment*.

### 16.3 WOOD AND PAPER PRODUCT MANUFACTURING INDUSTRIES, Summary of Operations—1997–98

Industry	Employment at 30 June(a) '000	Wages and salaries(b) \$m	Turnover \$m
Log sawmilling and timber dressing			
Log sawmilling	7.0	178.8	771.3
Wood chipping	0.9	36.2	506.8
Timber resawing and dressing	7.4	240.6	1 215.3
<i>Total</i>	15.3	455.6	2 493.3
Other wood product manufacturing			
Plywood and veneer manufacturing	1.5	50.2	237.7
Fabricated wood manufacturing	3.4	148.3	842.9
Wooden structural component manufacturing	18.7	479.3	2 184.3
Wood product manufacturing n.e.c.	6.5	125.9	560.4
<i>Total</i>	30.2	803.7	3 825.3
Paper and paper product manufacturing			
Pulp, paper and paperboard manufacturing	4.8	260.3	1 961.2
Solid paperboard container manufacturing	2.4	108.5	506.4
Corrugated paperboard container manufacturing	5.4	265.5	1 440.2
Paper bag and sack manufacturing	1.2	47.4	278.2
Paper product manufacturing n.e.c.	3.5	147.9	993.1
<i>Total</i>	17.2	829.6	5 179.0
<b>Total wood and paper product manufacturing</b>	<b>62.6</b>	<b>2 088.9</b>	<b>11 497.5</b>

(a) Includes working proprietors. (b) Excludes the drawings of working proprietors.

Source: *Manufacturing Industry, Australia* (8221.0).

**16.4 PRODUCTION OF WOOD AND SELECTED WOOD PRODUCTS**

Commodity	Quantity	1994–95	1995–96	1996–97	1997–98
Sawn Australian grown timber					
Coniferous	'000 m <sup>3</sup>	2 121	2 053	2 063	2 327
Broadleaved	'000 m <sup>3</sup>	1 570	1 391	1 418	1 322
Total	'000 m <sup>3</sup>	3 691	3 445	3 481	3 649
Hardwood woodchips(a)	'000 t	5 437	4 827	4 779	5 665
Railway sleepers	'000 m <sup>3</sup>	84	86	72	67
Plywood	'000 m <sup>3</sup>	145	131	151	170
Unlaminated particle board(a)	'000 m <sup>3</sup>	864	826	790	882
Medium density fibreboard	'000 m <sup>3</sup>	436	377	434	501
Wood pulp(a)	'000 t	1 009	986	949	958
Paper and paperboard					
Newsprint(a)	'000 t	444	445	421	444
Printing and writing	'000 t	365	351	364	424
Household and sanitary	'000 t	173	180	181	191
Packaging and industrial	'000 t	1 312	1 344	1 452	1 483

(a) Excludes production of small single establishment management units with fewer than four persons employed, and establishments engaged in non-manufacturing activities but which may carry on, in a minor way, some manufacturing.

Source: Unpublished data, Australian Bureau of Statistics and Australian Bureau of Agricultural and Resource Economics.

## Government administration

Land and forests management is primarily the responsibility of State and Territory Governments. Each State has a forest authority responsible for the management and control of publicly-owned forests, in accordance with the Forestry Acts and Regulations of the State or Territory concerned.

Department of Agriculture, Fisheries and Forestry–Australia (AFFA) and the Department of the Environment and Heritage (E&H) are the two key agencies which have responsibilities relating to forests at the national level. Close liaison is maintained between the two agencies on relevant issues. AFFA's main responsibilities are the development of a national approach to forest management; providing advice to the Commonwealth Minister responsible for forest matters; administration of export licensing responsibilities in relation to unprocessed timber; liaison with State, national and international organisations concerned with forestry; provision of a Secretariat for the Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA); and management of policy and program initiatives.

E&H has responsibilities for environmental matters relating to forests, and provides policy advice to its Minister and the Government on conservation and environmental matters pertaining to Australia's forests, including biological diversity and climate change. The

Australian Heritage Commission and Environment Australia within the Environment and Heritage Portfolio have assessment, management and monitoring roles in respect of the national estate, endangered species and environmental impacts in Australia's forests.

AFFA and E&H, in close cooperation with the States, Territories and Ministerial Councils, were extensively involved in the development of the National Forest Policy Statement and the National Forest Inventory, which resides in the Bureau of Rural Sciences in AFFA.

The MCFFA consists of Commonwealth, State, Territory and New Zealand Ministers responsible for forestry. The Council is chaired jointly by the Commonwealth Minister for Agriculture, Fisheries and Forestry and the Commonwealth Minister for Industry, Science and Resources. MCFFA, the successor of the Australian Forestry Council formed in 1964, works to provide leadership and facilitate cooperation at the national level.

Initiatives fostered by the MCFFA are aimed at promoting the enhanced management of the nation's forest resources in the general interest of the community. Most recently, it has been involved in the development and implementation of initiatives under the National Forest Policy Statement in cooperation with the Australian and New Zealand Environment and Conservation Council.

## Commonwealth Government initiatives

### National Forest Policy Statement (NFPS)

The NFPS was signed by the Commonwealth and all mainland State and Territory Governments at the Council of Australian Governments' meeting in Perth in December 1992. Tasmania became a signatory in 1995.

The Statement provides a policy framework for the future management of Australia's public and private forests and outlines a vision for the ecologically sustainable management of Australia's forests, comprising 11 broad national goals in the following areas:

- Conservation—to maintain an extensive and permanent native forest estate in Australia and to manage that estate in an ecologically sustainable manner so as to conserve all values including biological diversity, heritage and Aboriginal and other cultural values.
- Wood production and industry development—to develop internationally competitive and ecologically sustainable wood production and wood products industries.
- Integrated and coordinated decision-making and management—to reduce fragmentation and duplication in the land use decision-making process between the States and the Commonwealth.
- Private native forests—to ensure that private native forests are maintained and managed in an ecologically sustainable manner, as part of the permanent native forest estate.
- Plantations—to expand Australia's commercial plantations of softwoods and hardwoods so as to provide an additional economically viable, reliable and high-quality wood resource for industry and to meet other environmental and economic objectives, in particular the rehabilitation of cleared agricultural land and the improvement of water quality.
- Water supply and catchment management—to ensure the availability of reliable, high-quality water supplies from forested land and to protect catchment areas.
- Tourism and other economic and social opportunities—to manage Australia's forests in an ecologically sustainable manner for a range

of uses, including tourism, recreation and production of non-wood products.

- Employment, labour force education and training—to expand employment opportunities and the skills base of people working in forest management and forest-based industries.
- Public awareness, education and involvement—to foster community understanding of, and support for, ecologically sustainable forest management.
- Research and development—to increase Australia's national forest research and development effort and to ensure that it is well coordinated, efficiently undertaken and effectively applied.
- International responsibilities—to promote nature conservation and sustainable use of forests outside Australia and to ensure that Australia fulfils its obligations under relevant international agreements.

### Plantation initiatives under the NFPS

In 1993, under the NFPS, the Commonwealth established two plantations initiatives: the Farm Forestry Program (FFP) and the Community Rainforest Reafforestation Program (CRRP). The CRRP is a joint initiative sponsored by the Commonwealth Government and State/Territory and local governments.

Commonwealth funding of the CRRP and FFP has continued since 1992 under the Wood and Paper Industry Strategy. From 1997–98, further funding for the FFP has been provided under the Natural Heritage Trust.

### Farm forestry

The FFP aims to promote commercial wood production on cleared agricultural land so as to provide an additional reliable, high-quality wood resource for sustainable regional industries, as well as to diversify farm incomes. The FFP also promotes tree-planting for the production of non-wood products with an emphasis on developing commercial uses of native species, while addressing problems of land degradation. A total of \$36.5m is available from the Natural Heritage Trust for farm forestry, of which \$3.1m was available in 1997–98. The National Farm Forest Inventory will identify the extent of farm forest plantings in 2001.

### Regional Forest Agreements (RFA)

Australia's National Forest Policy sets out broad conservation and industry goals for the management of Australia's forests agreed between the Commonwealth Government and the State and Territory Governments.

To implement this national policy, governments have opted for an approach which involves:

- providing interim protection to forest areas which may be required for a Comprehensive, Adequate and Representative (CAR) forest reserve system;
- undertaking Comprehensive Regional Assessments (CRAs) of environmental, heritage, economic and social values of forests; and
- negotiating RFAs between the Commonwealth Government and the State/Territory Governments about the long-term management and use of forests in a particular region.

Governments have agreed to a framework and process for carrying out comprehensive assessments of the economic, social, environmental and heritage values of forest regions.

In 1996, the Government allocated an additional \$48m over three years to accelerate the completion of the CRA process.

Once completed, CRAs will provide Governments with the information required to make decisions about forest use and sustainable management over the long term.

RFAs will provide a blueprint for the future management of our forests, and the basis for an internationally competitive and ecologically sustainable forest products industry.

The first RFA was signed between the Commonwealth Government and the Victorian Government for the East Gippsland region in February 1997. The RFA for Tasmania was signed in November 1997, while the RFA for Central Highlands (NSW) was signed in March 1998.

RFAs for Eden (NSW), Upper North East (NSW), North East (Victoria), the Lower Northern East (NSW) and South East Queensland RFAs are expected to be signed by the end of 1999.

### Wood and Paper Industry Strategy (WAPIS)

The Commonwealth outlined new initiatives to underpin development of the wood and paper industry in the WAPIS released in December 1995. The strategy is intended to build upon the RFA process, and aims to facilitate a positive environment for investment in downstream processing based on resources from sustainably managed native forests and plantations. The WAPIS is complemented by the Forest Industry Structural Adjustment program.

The WAPIS provides support to enhance the development of a farm forestry resource, activities to underpin forestry growing and processing, and industry research and development, including criteria and indicators for sustainable forest management.

The strategy seeks to include specific measures to enhance the development of a viable, value adding forest products industry by removing impediments and disincentives to reinvestment.

In the 1996–97 Federal Budget, \$32m was allocated to the Wood and Paper Industry Strategy over the four years 1996–97 to 1999–2000.

### Forestry Industry Structural Adjustment Program (FISAP)

The 1996–97 Federal Budget allocated \$98.6m to the FISAP to assist businesses and workers involved in native forest industries to adjust to changes as a result of the Interim/Deferred Forest Agreements and Regional Forest Agreements. Under matching funding arrangements with the States, \$60m has been committed to NSW, \$13.8m to Victoria, \$10m to Queensland and \$15m to Western Australia. As at 30 June 1999, about \$15.5m had been spent in NSW, \$1.5m in Victoria and small amounts in Queensland and Western Australia. A further \$0.3m has been spent in Tasmania, without a matching State commitment, to assist private landowners adversely affected by the Deferred Forest Agreement.

### National Forest Inventory (NFI)

In many of the debates over forest management, the information base on forest attributes, such as timber, fauna and flora, has been found to be incomplete. Accordingly, in late 1988 the Commonwealth Government initiated a National Forest Inventory (NFI). A State of the Forests Report (SOFR) produced by the NFI was released in December 1998. This comprehensive publication includes a description of the public, private, native and plantation forest resource,

forest use and management, and examination of the social forces framing public opinion. Information from the NFI is used to meet Australia's national and international forest-related reporting requirements.

### **National Plantation Inventory (NPI)**

The need for a NPI was highlighted in the Wood and Paper Industry Strategy. The purpose of the NPI is to describe in detail Australia's plantation resource in terms of location, species and planting date, and to forecast regional and national wood flows. The comprehensive information base, used to produce the first report of the NPI in 1997, leads to more informed discussion and decision-making about the future of Australia's forest industry.

In 1999, the NPI established a process for the annual collection and reporting of Australia's plantation estate involving key regional committees, State Agencies and growers. Annual figures will be updated and released each March. A comprehensive report, including woodflows along the lines of the 1997 report, will be published five yearly, with the next report due in 2000.

### **National Farm Forest Inventory (NFFI)**

A National Farm Forest Inventory has been established, as a component of the NPI, to facilitate the collection and capture of data on the farm forestry plantation resource. The project was established due to the special nature of farm forestry (many small, discontinuous plantings) and the inherent difficulty of collecting data on such a resource. A major output of the project will be a quantitative snapshot of farm forestry resources at the end of the three year project in 2001. The NPI and NFFI together will provide a comprehensive picture of Australia's plantation resource.

### **Tropical timber**

In June 1992 the Commonwealth Government announced its International Tropical Forest Conservation and Sustainable Land Use Policy. A key aspect of the policy is a commitment to the year 2000 target set by the International Tropical Timber Organisation (ITTO), by which date all tropical timber products entering international trade should be derived from sustainably managed forests.

Other aspects of the policy include support for the conservation of biodiversity, reafforestation through agroforestry and plantations, and the provision of technical and scientific assistance to other countries, largely in the Asia-Pacific region, to promote better forest management practices. These policy

measures complement initiatives arising from the Rio Earth Summit including the Conventions on Climate Change and Biodiversity, Agenda 21, and the Statement of Principles on Forests.

### **Pulp mill guidelines**

In December 1989, the Commonwealth established environmental guidelines for the development of new bleached eucalypt kraft pulp mills. To ensure the effective implementation of the Commonwealth guidelines and to streamline approval processes, the Commonwealth concluded agreements with Tasmania, Western Australia and Victoria.

To ensure that the Commonwealth guidelines remain current with international developments in pulping and bleaching technologies, the Government also announced in December 1989 the establishment of a National Pulp Mills Research Program (NPMRP). The NPMRP is a cooperative venture involving the Commonwealth Government and State Governments, community interest groups, industry and the Commonwealth Scientific and Industrial Research Organisation (CSIRO). The Program's principal objectives are the expansion of basic knowledge in pulping of eucalypt woods and bleaching of the pulps; improving the currently available technology; and developing more relevant and superior biological monitoring systems for the receiving waters.

The Commonwealth has released a set of guidelines based on recent international research under the Pulp and Paper Research Program and recent international developments in the wood pulping industry.

### **Forest and Wood Products Research and Development Corporation**

The Forest and Wood Products Research and Development Corporation was established in 1994 as a key initiative under the National Forest Policy Statement, to assist the forest industries to improve their international competitiveness and to realise their growth potential. The Corporation has structured its work around four key research programs:

- sustainability and environmental management;
- better structural/building systems;
- process and new product development; and
- plantation and regrowth timber—from forest to market.

The Corporation is jointly funded by industry and the Commonwealth.



### First Approximation Report of the 'Montreal Process' Working Group

In June 1997, Australia released its *First Approximation Report* on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (the 'Montreal Process'). This was the first time Australia had attempted to report against the seven criteria and 67 indicators of sustainable forest management agreed by the Montreal Process Working Group in 1995. Data for the report were drawn from the National Forest Inventory as well as Commonwealth, State and Territory agencies.

### Framework of regional criteria and indicators

The Commonwealth Government and the State Governments, with input from other stakeholders, have developed a framework of regional criteria and indicators for assessing sustainable forest management in the RFA process. The framework is based on the internationally agreed Montreal Process criteria and indicators. A national conference and a series of expert/technical workshops provided input into the development of the framework, which aims to provide:

- a basis for assessing progress towards the achievement of sustainable forest management on a regional (sub-national) scale;
- information in terms of a scale which can be aggregated to a national level in a transparent and credible way for reporting against the Montreal Process criteria and indicators; and
- direction to the RFA process concerning data collection and reporting with respect to sustainable forest management.

The framework is also relevant to areas outside the RFA process. The development and use of indicators will be an evolving process that will be reviewed and adjusted as appropriate to reflect new research findings, advances in technology, changes in community values, and developments in sustainable forest management practices.

### Commonwealth Scientific and Industrial Research Organisation (CSIRO)

CSIRO organises its research in industry sectors, and research on production forestry and forest

products takes place in the Forestry, Wood and Paper Industries Sector. The emphasis is on strategic research concerned with sustainable commercial production and processing of wood from native eucalypt forests and plantations of eucalypts and softwoods.

Much of CSIRO's work in this sector takes place at CSIRO Forestry and Forest Products, which has its headquarters and main laboratory in Canberra; a forest products laboratory at Clayton, Victoria; with other laboratories in Hobart, Tasmania; Mount Gambier, South Australia; and Perth, Western Australia. Part of the Cooperative Research Centre for Sustainable Forest Management is co-located with the Division on the campus of the University of Tasmania. The Cooperative Research Centre for Hardwood Fibre and Paper Science operates from the CSIRO–Monash University site at Clayton. Other Divisions of CSIRO which contribute to the sector are the Divisions of Entomology, Land and Water, Plant Industry and Wildlife and Ecology.

CSIRO Divisions of Wildlife and Ecology and Plant Industry undertake studies of rainforest ecology from the Tropical Forest Research Centre at Atherton, Queensland.

Research undertaken by CSIRO Forestry and Forest Products is closely aligned to major forest resources and industries: softwood plantations, hardwood plantations, native forests, solid wood processing and production, wood protection, wood composites, and pulp and paper. Important disciplines are tree physiology, nutrition, genetics, chemistry, wood science and engineering. Major projects include genetic improvement, regrowth forest management, later age stand management in softwood plantations, irrigation forestry, processing small hardwood logs, development of wood preservatives and improved pulping technologies.

Sustained high value production has long been a major goal of forest managers and researchers. Australia has endorsed the criteria and indicators for the sustainable management of native forests developed through the Montreal Process. The National Forest Policy Statement and the Wood and Paper Industry Strategy provide the framework for cooperative national action on this issue. The Division is actively involved in research for defining and monitoring ecologically sustainable forest management.

## Fishing

### Fisheries resources

This section covers Australia's fisheries resources and activities relating to their protection and use.

Australia's fisheries stocks are extremely diverse but, by world standards, its marine ecosystem is relatively unproductive. The Australian Fishing Zone (AFZ) covers an area 16% larger than the Australian land mass and is the third largest fishing zone in the world. In 1997–98, it provided about three kilograms in edible weight of fresh and frozen fish for every Australian. However, production from the AFZ is insignificant by world standards. This reflects low productivity of the oceans rather than under-exploitation of the resource. However, while some species are currently considered to be overharvested, some fish resources such as albacore and southern whiting are not being used optimally.

Over 3,000 species of marine and freshwater fish, and at least an equal number of crustacean and mollusc species, occur in and around Australia. Less than 600 of these are commercially exploited. Australia's major commercially exploited species are prawns, rock lobster, abalone, tuna, other fin fish, scallops, and edible and pearl oysters. Australian fishing operators concentrate their efforts on estuarine, coastal, pelagic (surface) species and demersal (bottom living) species that occur on the continental shelf.

The level of fishing activity has increased over the last decade to the point where almost all the major known fish, crustacean and mollusc resources are fully exploited. Some major fisheries such as southern bluefin tuna, gemfish and shark have suffered serious biological depletion.

Aquaculture, or 'fish farming', is an alternative to harvesting the naturally occurring fish stocks and has considerable potential as a means of ensuring sustainability of harvesting yields. Aquaculture industries are established in all States, with species involved ranging from pearl oysters to freshwater trout. Aquaculture has experienced

rapid growth over recent years, with the value of production rising from \$188.0m in 1989–90 to \$491.4m in 1997–98.

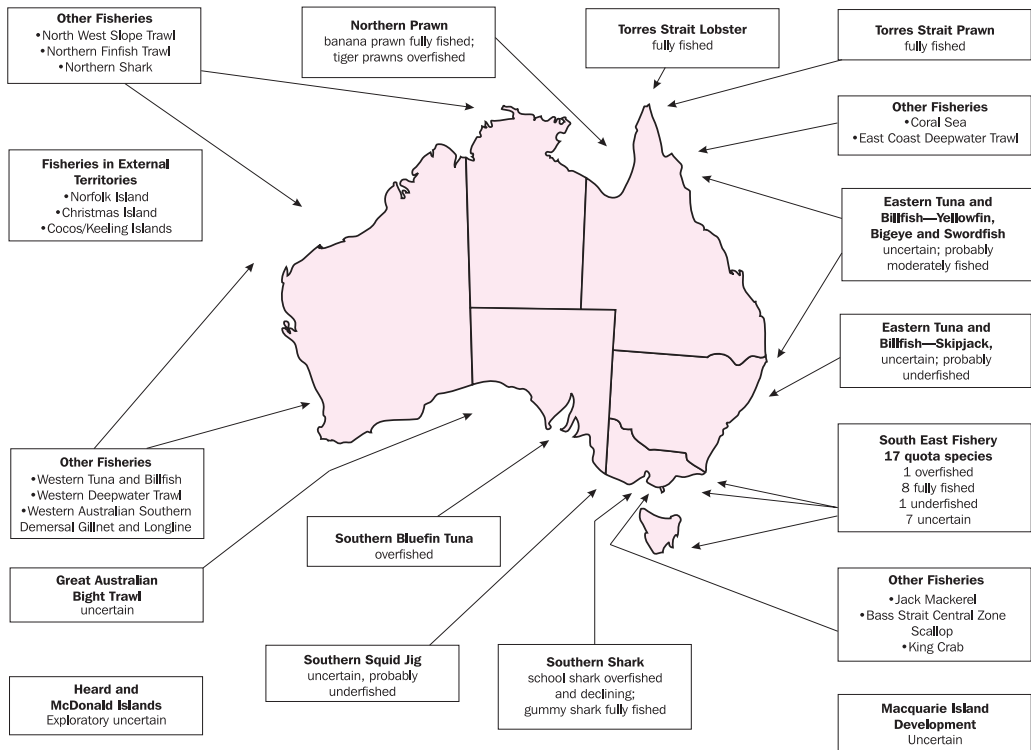
Australia has enjoyed a relatively long history of success in the farming of the Sydney rock oyster. Pearl culture operations, prawn, barramundi, freshwater crayfish and ornamental fish farming are well established. The production of juveniles of several species of fin fish, molluscs and crustaceans has been undertaken for some years, initially for restocking wild populations and subsequently for grow-out operations. As in many other developed countries, there has been a surge of interest and investment in many types of aquatic farms over the last decade. Notable successes are the salmon industry in Tasmania and commercial cultivation of the Pacific oyster, blue mussel and rainbow trout, and the growing of southern bluefin tuna.

Developmental work is taking place in a number of areas including in a range of fin fish, freshwater crayfish (marron), mussels and algae. Research is continuing into the hatchery rearing of species such as abalone, scallops, giant clams, and flat and pearl oysters. Over half by value of the established aquaculture output goes to markets other than for direct consumption. However, the output of the newer industries goes mainly to markets for direct consumption.

In March 1994, the Commonwealth Government released the National Strategy on Aquaculture in Australia. The development of the Strategy was a cooperative process, involving government at the national and State/Territory levels, as well as industry, and other interested parties. The Strategy provides a framework for planning the sustainable growth and development of aquaculture at the national, State/Territory, regional and enterprise levels. In June 1997, an Implementation Review of the Aquaculture Strategy assessed progress that had been made in implementing specific goals of the Strategy and highlighted those areas that still required action.

The status of Australia's Commonwealth managed or jointly managed fisheries resources is summarised in map 16.5.

## 16.5 STATUS OF COMMONWEALTH MANAGED OR JOINTLY MANAGED FISHERIES RESOURCES



Source: Bureau of Rural Sciences 1998.

## Production, processing, and exports and imports of fisheries products

### Value of fisheries production

Table 16.6 shows the quantity and table 16.7 the gross value of the production of the Australian commercial fishing industry. Australian fisheries production covers total production from both Commonwealth and State managed fisheries and from aquaculture. Gross value of production is the value placed on recorded production at the wholesale price realised in the principal markets. In general, the principal markets are the metropolitan markets in each State. However, in cases where commodities are consumed locally or where they become raw material for a secondary industry, these points are treated as the principal markets. (As the value of materials used in the course of production is not available, it is not possible to show net values.)

The gross value of Australian fisheries production rose by 5% in 1997–98, to \$1.86b (table 16.8) following on from a 5% increase the previous year. Gross value of abalone production increased

by 16%, as did the value of tuna production. The gross value of pearl production rose a further 11% on the previous year's 41% rise, while prawns recovered from a fall in 1996–97 to record a 10% increase in 1997–98. Oysters and rock lobster fell 16% and 10%, respectively (table 16.9).

Consistent with the increase in gross value of fisheries production, the quantity of production rose in 1997–98, but by just 1%, following a fall of 2% in the previous year (table 16.10). In contrast to the 16% increase in the value of the tuna catch, the actual quantity of tuna production fell by 15% in 1997–98.

Commonwealth fisheries are those managed for the Commonwealth Government by the Australian Fisheries Management Authority. State Governments manage inland fisheries and aquaculture in addition to those salt water fisheries not managed by the Commonwealth. The distribution of the management of fisheries between the Commonwealth and the States is determined following consultations held under the Offshore Constitutional Settlement Agreement.



Commonwealth fisheries accounted for 19% of the total value of Australian fisheries production in 1997–98 (table 16.7).

### 16.6 AUSTRALIAN FISHERIES PRODUCTION, By State(a)—1997–98

	NSW	Vic.	Qld	SA	WA	Tas.	NT	C'wealth(b)	Aust.
	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes	tonnes
<b>Fish</b>									
Tuna	—	—	—	4 371	22	—	15	(c)10 192	(d)11 091
Other	14 211	6 519	12 201	8 508	20 106	18 081	3 529	(e)45 188	128 343
<b>Total</b>	<b>14 211</b>	<b>6 519</b>	<b>12 201</b>	<b>12 879</b>	<b>20 128</b>	<b>18 081</b>	<b>3 543</b>	<b>55 380</b>	<b>139 434</b>
<b>Crustaceans</b>									
Prawns	2 059	13	9 545	2 759	4 073	—	—	(f)10 470	28 919
Rock lobster	107	508	661	2 622	10 485	1 485	—	219	16 087
Other	932	151	3 764	607	1 625	132	617	184	8 012
<b>Total</b>	<b>3 099</b>	<b>672</b>	<b>13 971</b>	<b>5 988</b>	<b>16 183</b>	<b>1 617</b>	<b>617</b>	<b>10 872</b>	<b>53 019</b>
<b>Molluscs</b>									
Abalone	333	1 422	—	812	326	2 360	—	—	5 253
Scallops	1	288	4 615	—	1 457	—	—	3 513	9 874
Oysters	5 294	—	290	1 636	—	1 986	—	—	9 206
Other	1 572	856	177	1 397	722	185	187	(g)955	6 052
<b>Total</b>	<b>7 200</b>	<b>2 566</b>	<b>5 082</b>	<b>3 845</b>	<b>2 505</b>	<b>4 531</b>	<b>187</b>	<b>4 468</b>	<b>30 384</b>
<b>Total quantity</b>	<b>24 510</b>	<b>9 757</b>	<b>31 254</b>	<b>22 712</b>	<b>38 816</b>	<b>24 229</b>	<b>4 347</b>	<b>70 723</b>	<b>222 837</b>

(a) State totals include estimates of aquaculture production, but exclude hatchery and inland commercial fishery production.

(b) Total includes all fisheries under federal jurisdiction. (c) Includes the southern bluefin, east coast, southern and western tuna fisheries. (d) Total has been adjusted to allow for southern bluefin tuna caught in the Commonwealth southern bluefin tuna fishery, as an input to farms in South Australia. (e) Includes the fish component of Commonwealth fisheries. (f) Includes the northern prawn, Torres Strait, south east and other fisheries. (g) Includes squid, octopus and cuttlefish from the south east and Great Australian Bight fisheries, and pearl oyster from the Torres Strait fishery.

Source: Australian Bureau of Agricultural and Resource Economics.

### 16.7 GROSS VALUE OF AUSTRALIAN FISHERIES PRODUCTION, By State(a)—1997–98

	NSW	Vic.	Qld	SA	WA	Tas.	NT	C'wealth(b)	Aust.
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Fish</b>									
Tuna	—	—	—	70 940	51	—	25	(c)68 297	(d)111 241
Other	37 795	25 807	73 910	16 994	41 628	75 570	14 006	(e)118 920	404 630
<b>Total</b>	<b>37 795</b>	<b>25 807</b>	<b>73 910</b>	<b>87 934</b>	<b>41 679</b>	<b>75 570</b>	<b>14 031</b>	<b>187 217</b>	<b>515 871</b>
<b>Crustaceans</b>									
Prawns	21 686	108	129 029	33 247	54 817	—	—	(f)138 982	377 869
Rock lobster	3 938	16 444	7 937	78 351	210 211	46 223	—	10 184	373 288
Other	6 578	3 564	20 523	3 187	8 861	2 449	7 446	1 783	54 392
<b>Total</b>	<b>32 203</b>	<b>20 116</b>	<b>157 489</b>	<b>114 785</b>	<b>273 889</b>	<b>48 672</b>	<b>7 446</b>	<b>150 949</b>	<b>805 549</b>
<b>Molluscs</b>									
Abalone	9 990	50 858	—	26 883	10 703	77 923	—	—	176 357
Scallops	2	578	22 924	—	6 119	—	—	7 077	36 700
Oysters	25 887	—	586	7 000	—	10 459	—	—	43 933
Other	4 806	2 220	887	3 529	206 026	1 322	58 782	(g)3 878	281 451
<b>Total</b>	<b>40 685</b>	<b>53 656</b>	<b>24 397</b>	<b>37 412</b>	<b>222 848</b>	<b>89 704</b>	<b>58 783</b>	<b>21 322</b>	<b>538 440</b>
<b>Total value</b>	<b>110 682</b>	<b>99 579</b>	<b>255 796</b>	<b>240 131</b>	<b>538 416</b>	<b>213 946</b>	<b>80 260</b>	<b>349 111</b>	<b>1 859 860</b>

(a) State totals include estimates of aquaculture production, but exclude hatchery and inland commercial fishery production.

(b) Total includes all fisheries under federal jurisdiction. (c) Includes the southern bluefin, east coast, southern and western tuna fisheries. (d) Total has been adjusted to allow for southern bluefin tuna caught in the Commonwealth southern bluefin tuna fishery, as an input to farms in South Australia. (e) Includes the fish component of the Commonwealth fisheries. (f) Includes the northern prawn, Torres Strait, south east and other fisheries. (g) Includes squid, octopus and cuttlefish from the south east and Great Australian Bight fisheries, and pearl oyster from the Torres Strait fishery.

Source: Australian Bureau of Agricultural and Resource Economics.

**16.8 GROSS VALUE OF FISHERIES PRODUCTION**

	Value
	\$m
1979–80	326
1980–81	330
1981–82	344
1982–83	423
1983–84	449
1984–85	522
1985–86	635
1986–87	702
1987–88	828
1988–89	1 022
1989–90	1 092
1990–91	1 223
1991–92	1 376
1992–93	1 493
1993–94	1 679
1994–95	1 813
1995–96	1 690
1996–97	1 778
1997–98(a)	1 860

(a) Estimate only.

Source: Australian Bureau of Agricultural and Resource Economics.

**16.10 AUSTRALIAN FISHERIES PRODUCTION, By Category(a)**

	1995–96	1996–97	1997–98
	tonnes	tonnes	tonnes
<b>Fish</b>			
Tuna	9 245	13 025	11 091
Other	123 530	123 654	128 343
<i>Total</i>	<i>132 775</i>	<i>136 679</i>	<i>139 434</i>
<b>Crustaceans</b>			
Prawns	29 366	27 565	28 919
Rock lobster	15 784	15 703	16 087
Other	8 298	7 915	8 012
<i>Total</i>	<i>53 449</i>	<i>51 182</i>	<i>53 019</i>
<b>Molluscs</b>			
Abalone	5 408	5 240	5 253
Scallops	16 018	8 589	9 874
Oysters	10 061	10 743	9 206
Other	6 848	7 856	6 052
<i>Total</i>	<i>38 335</i>	<i>32 429</i>	<i>30 384</i>
<b>Total</b>	<b>224 559</b>	<b>220 290</b>	<b>222 837</b>

(a) Includes an estimate for aquaculture production, but excludes production from inland commercial fisheries.

Source: Australian Bureau of Agricultural and Resource Economics.

**16.9 GROSS VALUE OF SELECTED MAJOR FISHERIES CATEGORIES**

	1995–96	1996–97(a)	1997–98(a)
	\$m	\$m	\$m
Prawns	368	344	378
Rock lobster	372	412	373
Tuna	85	96	111
Other fin fish	352	378	405
Abalone	142	152	176
Scallops	71	36	37
Oysters	52	51	44
Pearls	122	172	190
Other n.e.i.	126	137	147
<b>Total</b>	<b>1 690</b>	<b>1 778</b>	<b>1 860</b>

(a) Estimate only.

Source: Australian Bureau of Agricultural and Resource Economics.

The value of Australian aquaculture production also increased in 1997–98, by \$54.3m (12%) (table 16.11). Aquaculture accounted for 26% of the total value of Australian fisheries production in 1997–98, up slightly from its share of 25% in the previous year. The increase in the value of aquaculture production was mainly due to a \$30.7m (76%) rise in the value of tuna production, pearl oyster contributing another \$17.6m (a 10% rise).

**16.11 GROSS VALUE OF AQUACULTURE PRODUCTION(a)**

	1995–96	1996–97	1997–98
	\$m	\$m	\$m
<b>Fish</b>			
Salmon	58.5	58.5	63.6
Tuna	39.9	40.2	70.9
Trout	14.3	12.3	12.7
Other(b)	10.2	11.4	9.3
<i>Total</i>	<i>122.9</i>	<i>122.5</i>	<i>156.5</i>
<b>Crustaceans</b>			
Prawn	33.0	32.7	32.7
Other(c)	4.6	5.6	5.9
<i>Total</i>	<i>37.6</i>	<i>38.3</i>	<i>38.6</i>
<b>Molluscs</b>			
Pearl oysters	121.6	172.0	189.6
Edible oysters	51.5	51.3	43.9
Other(d)	4.2	8.1	4.8
<i>Total</i>	<i>177.4</i>	<i>231.3</i>	<i>238.3</i>
<b>Total(e)</b>	<b>382.8</b>	<b>437.1</b>	<b>491.4</b>

(a) Excludes aquarium fish, hatcheries production, crocodiles, microalgae, and aquarium worms. (b) Includes eels and other native fish. (c) Includes crabs and brine shrimp. (d) Includes mussels, scallops and giant clams. (e) Only this total line includes Northern Territory production.

Source: Australian Bureau of Agricultural and Resource Economics.

Table 16.12 shows the volume of Australian aquaculture production for the three years 1995–96 to 1997–98. Production increased by 1% in each of the last two years, to 26,998 tonnes in 1997–98. Edible oysters recorded the most aquaculture production in 1997–98 with 9,206 tonnes, despite a fall of 14% from 1996–97 production. Salmon production also fell (by 8%), but these significant falls were compensated by tuna production more than doubling in 1997–98 to 4,371 tonnes.

**16.12 AUSTRALIAN AQUACULTURE PRODUCTION**

	1995–96	1996–97	1997–98
	tonnes	tonnes	tonnes
<b>Fish</b>			
Salmon	7 647	7 648	7 069
Trout	2 333	2 092	2 118
Tuna	2 018	2 089	4 371
Other	1 058	1 202	966
<i>Total(a)</i>	<i>13 056</i>	<i>13 031</i>	<i>14 524</i>
<b>Crustaceans</b>			
Prawn	1 565	1 393	1 393
Yabbies	174	188	230
Marron	25	52	55
Other	95	108	108
<i>Total(b)</i>	<i>1 859</i>	<i>1 741</i>	<i>1 786</i>
<b>Molluscs</b>			
Edible oysters	10 061	10 743	9 206
Pearl oysters	—	—	—
Other	1 375	1 122	1 482
<i>Total(c)</i>	<i>11 436</i>	<i>11 865</i>	<i>10 687</i>
<b>Total</b>	<b>26 351</b>	<b>26 637</b>	<b>26 998</b>

(a) Includes eels and other native fish. (b) Includes crabs and brine shrimp. (c) Includes mussels, scallops and giant clams.

Source: Australian Bureau of Agricultural and Resource Economics.

### Processing of fish, crustaceans and molluscs

There is very little value added processing of fish products in Australia. Processing establishments vary in size, scope of operations and sophistication of technologies employed. The majority of establishments undertake only the most basic cleaning, filleting, chilling, freezing and packaging processes, but some have the capacity for significant product transformation. Much of the value that is added to the catch is due to correct handling and quick delivery by air to local or overseas markets.

Fish, crustaceans and molluscs intended for export are processed in establishments registered under the Export (Fish) Regulations. Edible fish for local consumption are mainly sent fresh-chilled to markets.

### Exports and imports

Exports of fisheries products come under Commonwealth jurisdiction, while domestic market activity is the responsibility of the States and Territories.

A significant proportion of Australian fisheries production (edible and non-edible) is exported. In 1997–98, the value of exports was \$1.5b (table 16.13), about 81% of the total value of Australian production. The 14% increase in the value of exports over 1996–97 was largely due to an increase of 49% in the value of exports of pearls to \$286m. Other major items to lift the value of their exports were prawns (up 27% to \$233m) and tuna (up 79% to \$80m). The value of rock lobster exports fell 6.4% to \$424m, but rock lobster remained Australia's highest value fisheries export in 1997–98, accounting for 28% of the total. Pearls, prawns and abalone (totalling \$192m) were the next largest fisheries export items.

Japan continued to be the major destination for Australian exports of fisheries products, accounting for 32% of the total value in 1997–98. Hong Kong and Taiwan accounted for the next largest shares of exported Australian fisheries products, with 16% and 12% respectively of total value. In 1997–98, exports of fisheries products to China were valued at \$120m, more than double the level of the previous year and nearly six times the 1995–96 value.

Western Australia continued to have the highest value of overall seafood exports (\$337m, or 29% of the total value in 1997–98), due mainly to its domination of rock lobster exports (with 63%). Queensland, the next biggest exporter of seafood, moved shipments to the value of \$291m, including \$158m worth of prawns (68% of total prawn exports). South Australia earned most from fish exports (\$92m), although Queensland exported a higher tonnage (6,698 tonnes for \$60m).

The total value of Australian imports of fisheries products increased in 1997–98, to an estimated \$819m (table 16.14), although Australia remained a net exporter of fisheries products. Imports of prawns (worth \$190m) increased by 23% over 1996–97, and continued to be the main single fisheries product imported, accounting for 23% of the total value of imports of fisheries products. The second largest single imported item was

frozen fillets (worth \$145m), representing 18% of the total value of imports of fisheries products. The value of imported canned fish increased by 21% to rank third at \$142m. The main countries of origin of these imports in 1997–98 were Thailand (27% of total import value), New Zealand (16%) and the United States of America (7%).

### 16.13 DESTINATION OF EXPORTS OF AUSTRALIAN FISHERIES PRODUCTS(a)

Country	1995–96		1996–97		1997–98	
	\$m	%	\$m	%	\$m	%
Japan	491	36.2	447	33.7	483	32.0
Hong Kong (SAR of China)	234	17.3	236	17.8	245	16.2
Taiwan	219	16.1	217	16.3	179	11.9
China	21	1.5	53	4.0	120	8.0
United States of America	64	4.7	76	5.7	110	7.3
Singapore	46	3.4	40	3.0	41	2.7
New Zealand	11	0.8	12	0.9	14	0.9
Thailand	13	1.0	8	0.6	14	0.9
Spain	15	1.1	10	0.8	13	0.9
Switzerland	8	0.6	8	0.6	9	0.6
France	13	1.0	4	0.3	6	0.4
South Korea	13	1.0	10	0.8	5	0.3
Germany	6	0.4	8	0.6	5	0.3
Other	202	14.9	198	14.9	266	17.6
<b>Total</b>	<b>1 356</b>	<b>100.0</b>	<b>1 327</b>	<b>100.0</b>	<b>1 510</b>	<b>100.0</b>

(a) Includes non-edible products (e.g. marine fats and oils, fish meal, pearls and ornamental fish).

Source: International Trade database.

### 16.14 SOURCE OF AUSTRALIAN IMPORTS OF FISHERIES PRODUCTS(a)

Country	1995–96		1996–97		1997–98p	
	\$m	%	\$m	%	\$m	%
Thailand	173	25.4	185	26.4	218	26.6
New Zealand	123	18.2	119	16.9	128	15.6
United States of America	40	5.9	48	6.8	59	7.2
Japan	21	3.2	23	3.3	32	3.9
Malaysia	31	4.5	27	3.8	28	3.4
South Africa	12	1.8	13	1.9	26	3.2
Chile	18	2.6	17	2.4	23	2.8
Viet Nam	18	2.7	20	2.9	22	2.6
Canada	30	4.4	19	2.8	21	2.6
Taiwan	17	2.5	18	2.6	20	2.5
Indonesia	9	1.3	10	1.4	18	2.2
Singapore	14	2.1	13	1.8	16	2.0
China	13	1.9	9	1.3	13	1.6
India	4	0.6	3	0.4	11	1.3
Denmark	9	1.4	8	1.1	9	1.1
Norway	8	1.1	8	1.1	8	1.0
Other	139	20.4	161	23.1	167	20.4
<b>Total</b>	<b>679</b>	<b>100.0</b>	<b>701</b>	<b>100.0</b>	<b>819</b>	<b>100.0</b>

(a) Includes non-edible products (e.g. marine fats and oils, fish meal, pearls and ornamental fish).

Source: International Trade data base.

## Fisheries legislation and territorial arrangements

The Commonwealth Parliament has enacted a number of laws governing fisheries in the Australian Fishing Zone (AFZ). Where appropriate arrangements under the Offshore Constitutional Settlement (OCS) have been concluded with the States or the Northern Territory, these laws can also have application in coastal waters.

The fisheries laws of the States and the Northern Territory apply to fishing in inland waters and, in the absence of OCS arrangements, to marine waters up to three nautical miles seaward of the territorial sea baseline. Where appropriate OCS arrangements have been concluded with the Commonwealth, these laws can also cover a part or the whole of the AFZ adjacent to that State or Territory.

Commonwealth and State/Territory fisheries laws enable the management of commercial fisheries. They generally provide for this to be done through licensing regimes, fisheries notices or individual fishery management plans.

### **Fisheries Management Act 1991 and the AFZ**

The Commonwealth *Fisheries Management Act 1991* applies to commercial fishing for swimming and sedentary species in the AFZ, excluding any waters that have been declared excepted waters. The AFZ is the area of waters generally between three and 200 nautical miles seaward of the territorial sea baseline of Australia and its external territories, excluding waters falling within the exclusive economic zone of another country, and covers a total of 8.9 million square kilometres. The establishment of the AFZ in 1979 brought portions of oceanic tuna stocks, and demersal and pelagic fish stocks previously exploited by foreign fishing vessels, under Australian control.

Fishery management plans are central to the Act and are to contain all essential rules applying to the management of a fishery. A management plan normally operates through a system of statutory fishing rights, which allows long term access to the fishery. The Act also provides for limited term fishing permits, which are primarily designed for the management of fish resources that are not yet under a management plan. Individual transferable quotas (ITQs) are used as the preferred tool to achieve a reduction in fishing levels. A particular fishery is assigned a total allowable catch, and the market for ITQs will determine the most efficient allocation of resources.

Australia has an international obligation, under the United Nations Convention on the Law of the Sea, to allow foreign nations access to resources within the AFZ that are surplus to domestic fisheries requirements and where such access does not conflict with Australian management and development objectives. To facilitate the process, the Act allows Australia to make bilateral agreements or joint venture arrangements with the government or commercial interests of another country under which foreign fishing licences will be granted to boats from that country.

Australia, Japan and New Zealand are parties to the Convention for the Conservation of Southern Bluefin Tuna (CCSBT), which came into force in 1994. As part of its conservation management responsibilities for the global southern bluefin tuna industry, the CCSBT Commission annually determines a total allowable catch for the fishery and allocates this between the three CCSBT parties in the form of national quotas.

The total allowable catch of Southern Bluefin Tuna (SBT) has been set since 1989–90 at 11,750 tonnes, with national allocations for Australia, Japan and New Zealand at 5,265 tonnes, 6,065 tonnes and 420 tonnes respectively. These quotas were continued for 1997–98, but no agreement was reached on quotas for 1998–99. When Japan commenced a unilateral experimental fishing program in July 1998 for an additional 1,400 tonnes of its SBT quota, Australia placed bans on Japan's access to the AFZ and Australian ports.

The Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States (USA) forms the Schedule to the Act. The effect of this is that US tuna boats are given treaty licences in accordance with the provisions of the Treaty.

Whales are a protected species in the AFZ.

### **Australian Fisheries Management Authority**

The *Fisheries Administration Act 1991* establishes the Australian Fisheries Management Authority (AFMA) and prescribes its objectives. These are:

- implementing efficient and cost-effective fisheries management on behalf of the Commonwealth;
- ensuring that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable

development, in particular the need to have regard to the impact of fishing activities on non-target species and the marine environment;

- maximising economic efficiency in the exploitation of fisheries resources;
- ensuring accountability to the fishing industry and to the Australian community in AFMA's management of fisheries resources; and
- achieving government targets in relation to the recovery of the cost of AFMA.

The Act specifies AFMA's functions, which include a duty to engage in appropriate consultation and to devise and implement management plans, adjustment programs and exploratory/feasibility fishing programs. AFMA is also to establish priorities for management related research and arrange for such research to be undertaken. AFMA's management responsibilities include arrangements with States and Territories. Under the Fisheries Management Act, AFMA is given additional functions in areas such as keeping a register of statutory fishing rights, surveillance and enforcement.

### Other legislation

The *Fishing Levy Act 1991*, *Foreign Fishing Licences Levy Act 1991* and *Fisheries Agreements (Payments) Act 1991* enable the imposition of management levies and access fees payable by Australian and foreign fishermen, foreign governments and foreign commercial interests. The *Statutory Fishing Rights Charge Act 1991* enables a charge to be levied on the grant of new fishing rights.

The *Torres Strait Fisheries Act 1984* gives effect in Australian law to the fisheries elements of the Torres Strait Treaty. The Act applies in the area of Australian jurisdiction in the Torres Strait Protected Zone, and in areas outside but near that zone that have been proclaimed in respect of particular fisheries which Australia and Papua New Guinea have agreed to manage jointly under the treaty or which are referred to in the treaty.

## Fisheries research

The main aim of fisheries research in Australia is to provide a background of biological, technical and economic information which will provide guidance for the efficient and sustainable utilisation of fisheries resources. Much of the research already undertaken has been directed at formulating recommendations for management of various fisheries. Research work, including feasibility fishing projects involving foreign fishing

vessels, is also carried out and is expected to lead to the development of new fisheries, the expansion of under-exploited fisheries, greater economy in operations and the use of more efficient equipment and methods.

The Fisheries Research and Development Corporation (FRDC) was established in July 1991 by Regulation under the *Primary Industries and Energy Research and Development Act 1989*. Its objectives include:

- increasing the economic, environmental or social benefits to members of the Australian fishing and aquaculture industry and to the community generally by improving the production, processing, storage, transport or marketing of fish and fish products; and
- achieving the sustainable use and management of fisheries resources.

FRDC investigates and evaluates the requirements for research and development in relation to the fishing industry; coordinates and funds such research and development activities; and facilitates the dissemination, adoption and commercialisation of results.

FRDC is funded by an annual unmatched grant equal to 0.5% of GVP (the average gross value of fisheries production over the three immediately preceding financial years) and by research levies collected from the fishing industry which the Government matches to a maximum of 0.25% of GVP. In 1997–98, the FRDC planned, funded and managed 540 projects worth \$39.7m. In 1996–97, it was 411 projects worth \$36m.

Organisations in Australia at present engaged in research into fisheries matters are:

- CSIRO Division of Fisheries Research, which has its headquarters and main laboratory in Tasmania, and regional laboratories in Western Australia and Queensland (fisheries science);
- CSIRO Division of Oceanography, which has its headquarters and laboratory in Tasmania;
- CSIRO Division of Food Research, which conducts research into handling, storage, processing and transportation of fish at its laboratory in Tasmania;
- Fisheries and Aquaculture Branch, Department of Agriculture, Fisheries and Forestry—Australia, Canberra;
- Bureau of Rural Sciences (Department of Agriculture, Fisheries and Forestry—Australia), Canberra;

- Australian Bureau of Agricultural and Resource Economics (Department of Agriculture, Fisheries and Forestry–Australia), Canberra;
- State and Territory fisheries departments (research vessels are operated by all States);
- Great Barrier Reef Marine Park Authority (GBRMPA) located in universities in Townsville and Canberra; and
- private fishing companies (surveys of fisheries resources, research into handling, processing and marketing).

## Aquaculture

Aquaculture is one of Australia's fastest growing primary industries. As indicated earlier in this chapter under *Fisheries resources*, the 1997–98 farmgate value of production was \$491.4m, compared with \$188.0m in 1989–90. The major sectors contributing to this growth were pearl and edible oysters, tuna, salmon, prawns and southern bluefin tuna.

Australian aquaculture is expected to continue to show strong growth for the next 10 years and, on current estimates, the value of production will be in excess of \$1b by the end of this period. The industry provides regional development and employment opportunities in rural Australia, as well as contributing to export growth.

In 1994, the National Strategy for Aquaculture in Australia was released, and the first review of this strategy has been undertaken. This review has

shown important progress against the following key goals:

- industry structure and organisation;
- relationship between aquaculture and capture fisheries;
- government framework;
- environmental management;
- water and land use planning;
- research and development;
- marketing and product development;
- education and training;
- extension services; and
- quarantine and movement.

The operational responsibility for the development of aquaculture in Australia rests with State and Territory Governments. A number of States have aquaculture and coastal development plans in place. These plans take into account the needs of the multiple user groups and provide a focus for aquaculture as an industry and as a legitimate user of water and land resources.

Aquaculture provides a basis for improved biological understanding of Australia's native marine and freshwater species and can be used to re-establish populations of endangered aquatic species. Aquaculture may also improve the catch in both recreational and commercial fisheries through restocking programs.



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### ABS publications

There are no ABS publications devoted to forestry and fishery statistics for Australia as a whole. Forestry and fishery statistics are available in unpublished ABS data, which can be obtained on request, or in publications on broader subjects:

*Apparent Consumption of Foodstuffs, Australia* (4306.0).

*Business Operations and Industry Performance* (8140.0).

*Manufacturing Industry, Australia* (8221.0).

### Other publications

Australian Bureau of Agricultural and Resource Economics

—*Agriculture and Resources Quarterly* (various issues).

—*Australian Fisheries Statistics, 1998*.

—*Quarterly Forest Products Statistics* (various issues).

Bureau of Rural Sciences

—*National Forest Inventory, 1998*. Available on the Bureau of Rural Sciences Internet site (see below) at <http://www.brs.gov.au/nfi>

—*National Plantation Inventory, 1998*.

—*Status of Fisheries Report, 1998*. Available on the BRS Internet site (see below) at <http://www.brs.gov.au/frb/status.html>

### Internet sites

Bureau of Rural Sciences, <http://www.brs.gov.au>

—The site carries Status of Fisheries Reports on Commonwealth managed fisheries (at <http://www.brs.gov.au/frb/status.html>). Information on Australian fish is also available on FISHBASE, at <http://www.fishbase.org>

Commonwealth Department of Agriculture, Fisheries and Forestry—Australia, <http://www.affa.gov.au>

Commonwealth Scientific and Industrial Research Organisation, Forestry and Forest Products, <http://www.ffp.csiro.au>





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## Introduction

**M**ining, as defined in the 1993 edition of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC), broadly relates to the extraction of minerals occurring naturally as solids such as coal and ores, liquids such as crude petroleum, or gases such as natural gas. First stage processing of minerals and mineral extracts, while closely related to the mining industry, is included as part of the manufacturing industry.

Australia continues to rank highly as one of the world's leading mineral resource nations, and the minerals industry is the nation's largest export earner.

The mining industry contributed \$22.6b or 5% of Australia's Gross Domestic Product (GDP) in 1996–97.

## Main features of 1996–97

Table 17.1 provides a summary of the operations of mining industries in 1996–97. Turnover in the mining industry sector rose by 6% to \$34.1b, while employment in the sector decreased by 2% (1,100 persons) to 55,700 persons between June 1996 and June 1997.

Turnover rose in the oil and gas extraction industry by \$1.0b (13%) to \$9.0b and in the silver-lead-zinc mining industry by \$146m (13%) to \$1.3b.

Other industries to show increases in turnover were mineral sand mining, up 9% to \$849m; coal mining, up 6% to \$10.9b; iron ore mining, also up 6% to \$3.7b; gold ore mining, up 2% to \$4.7b and copper ore mining up 1% to \$1.3b.

The only two industries to show falls in turnover were bauxite mining, down 10% to \$898m and other metal ore mining, down 5% to \$1.3b.

The coal mining industry was the largest contributor to turnover in 1996–97. Coal mining accounted for 32% of turnover, the same as in 1995–96, while oil and gas extraction accounted for 27%. The other main contributors were the gold ore mining and iron ore mining industries, which accounted for 14% and 11% respectively of total turnover in 1996–97.

**17.1 MINING, Summary of Operations by Industry—1996–97**

	Employment at 30 June(a)	Wages and salaries(b)	Turnover(c)	Stocks		Purchases and selected expenses	Value added	Net capital expenditure
				Open	Close			
	no.	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Coal mining	26 000	2 088	10 912	826	999	4 963	6 123	1 329
Oil and gas extraction	4 134	373	9 047	304	263	750	8 256	1 191
Metal ore mining								
Iron ore mining	5 740	438	3 746	330	384	1 385	2 415	283
Bauxite mining	1 786	115	898	77	95	239	677	133
Copper ore mining	2 605	148	1 332	165	295	540	921	177
Gold ore mining	8 152	454	4 710	544	617	2 616	2 167	737
Mineral sand mining	2 204	108	849	160	203	404	488	167
Silver-lead-zinc ore mining	3 146	212	1 291	136	161	537	779	226
Other(d)	1 946	157	1 315	272	314	731	626	258
Total metal ore mining	25 579	1 631	14 142	1 684	2 067	6 453	8 072	1 980
<b>Total mining 1996–97</b>	<b>55 713</b>	<b>4 093</b>	<b>34 101</b>	<b>2 813</b>	<b>3 328</b>	<b>12 165</b>	<b>22 451</b>	<b>4 501</b>
Total mining 1995–96	56 810	3 917	32 076	2 529	2 788	11 700	20 635	4 862

(a) Includes working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes transfers out to other establishments of the same management unit where appropriate. (d) Includes nickel ores, tin ores, uranium ores and non-ferrous metal ores n.e.c.

Source: *Australian Mining Industry* (8414.0).

Table 17.2 contains a summary of the operations of mining industries in 1996–97 by State and Territory.

Table 17.3 shows industry gross product over the five years to 1996–97.

## Mineral production

The value of production in the metallic minerals, coal, and oil and gas industries for 1996–97 was \$31.4b, an increase of 9% over the previous year (see table 17.4). Metallic minerals accounted for

the largest proportion (43%) of the total value of production, while coal represented 29% of the total, and oil and gas 28%.

In terms of value, the two most important minerals were gold and iron ore, with production values of \$4.4b and \$3.6b respectively, for a combined share of 60%.

The value of production of the oil and gas industry rose to \$8.8b from \$8.1b in 1995–96, an increase of \$751m (9%). The total value of production of the coal industry in 1996–97 was \$9.1b.

### 17.2 MINING, Summary of Operations by State/Territory—1996–97

	Employment at 30 June(a)	Wages and salaries(b)	Turnover(c)	Stocks		Purchases and selected expenses	Value added	Net capital expenditure
				Open	Close			
	no.	\$m	\$m	\$m	\$m	\$m	\$m	\$m
NSW	15 965	1 250	5 673	473	496	2 646	3 050	699
Vic.	1 971	122	3 308	52	61	244	3 073	465
Qld	14 973	1 127	7 457	707	1 003	3 339	4 415	1 090
SA	1 854	114	1 048	153	95	253	737	193
WA	17 967	1 271	14 717	1 156	1 388	4 960	9 988	1 828
Tas.	1 039	85	434	55	60	219	220	40
NT	1 944	124	1 465	217	225	505	969	186
<b>Aust.</b>	<b>55 713</b>	<b>4 093</b>	<b>34 101</b>	<b>2 813</b>	<b>3 328</b>	<b>12 165</b>	<b>22 451</b>	<b>4 501</b>

(a) Includes working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes transfers out to other establishments of the same management unit where appropriate.

Source: Australian Mining Industry (8414.0).

### 17.3 MINING, Gross Product by Industry

Year	Coal mining	Oil and gas extraction	Metal ore mining	Total coal mining, oil and gas extraction and metal ore mining
	\$m	\$m	\$m	\$m
1992–93	3 795	6 427	5 275	<b>15 496</b>
1993–94	4 001	6 089	5 540	<b>15 630</b>
1994–95	3 673	5 814	5 990	<b>15 476</b>
1995–96	4 546	6 407	7 069	<b>18 021</b>
1996–97	4 897	7 468	6 683	<b>19 048</b>

Source: Australian Mining Industry (8414.0).

**17.4 MINERAL PRODUCTION, Selected Minerals, Australia**

	Units	1992–93	1993–94	1994–95	1995–96	1996–97(a)
<b>Metallic minerals</b>						
Bauxite	'000 t	40 946	43 306	45 384	50 724	46 874
Copper concentrate(b)(c)	'000 t	1 262	1 338	9 423	1 316	1 787
Gold bullion (dore)(d)	kg	275 331	274 687	298 697	291 965	287 676
Iron ore(e)	'000 t	115 703	123 631	137 525	137 267	162 480
Lead concentrate	'000 t	856	873	766	774	774
Manganese ore(f)	'000 t	597	815	n.p.	1 298	n.p.
Mineral sands(g)	'000 t	2 118	2 252	2 375	2 491	3 044
Uranium concentrate (U3O8)(b)	t	1 342	1 457	n.a.	3 200	n.p.
Zinc concentrate(h)	'000 t	2 011	1 890	1 699	1 295	2 007
<i>Total value of metallic minerals</i>	<i>\$m</i>	<i>(i)10 920</i>	<i>(i)10 861</i>	<i>(i)11 715</i>	<i>12 708</i>	<i>13 422</i>
<b>Coal</b>						
Black coal	'000 t	177 970	177 874	191 903	194 492	205 442
Brown coal	'000 t	47 912	49 684	50 679	54 281	58 886
<i>Total value of coal</i>	<i>\$m</i>	<i>(j)(k)7 585</i>	<i>(j)(k)7 418</i>	<i>(j)(k)7 340</i>	<i>(k)8 006</i>	<i>(k)9 115</i>
<b>Oil and gas</b>						
Crude oil(l)	ML	30 592	29 583	31 301	30 763	29 130
Natural gas(m)	GL	16 631	15 959	17 486	19 169	n.a.
Ethane	GL	187	202	208	199	n.a.
Propane(n)	GL	2 078	2 115	1 999	2 092	2 150
Butane(n)	GL	1 651	1 622	1 480	1 544	1 593
Liquefied natural gas	'000 t	4 922	5 732	6 888	7 346	n.a.
<i>Total value of oil and gas</i>	<i>\$m</i>	<i>8 216</i>	<i>7 423</i>	<i>7 683</i>	<i>8 070</i>	<i>8 821</i>
<b>Total value of metallic minerals, coal, oil and gas</b>	<b>\$m</b>	<b>26 721</b>	<b>25 702</b>	<b>26 738</b>	<b>28 784</b>	<b>31 358</b>

(a) Break in series—data for 1996–97 derived solely from information supplied through the ABS mining collection. Data for prior years derived from information supplied by State mines departments or directly to the ABS, supplemented in some cases by data from other sources. (b) Excludes South Australia. (c) Includes copper concentrate in other forms. (d) Includes alluvial gold.

(e) Includes iron ore pellets. (f) Metallurgical grade. (g) Includes ilmenite, beneficiated ilmenite, leucoxene, monazite, rutile, synthetic rutile and zircon. (h) Includes zinc-lead concentrate. (i) Includes Tasmanian coal production. (j) Excludes Tasmania.

(k) Excludes briquettes. (l) Stabilised. Includes condensate. (m) Includes field and plant usage. (n) Excludes refinery production.

Source: Australian Mining Industry (8414.0).

## Exports

Australia is the world's largest exporter of black coal, bauxite, lead, diamonds and mineral sands; the second largest exporter of alumina, iron ore and uranium; and the third largest exporter of aluminium and gold.

The percentage contributions of the major mineral products to total merchandise exports have remained stable over the period 1990–91 to 1997–98. Black coal remained the biggest export earning commodity, with a value of \$9.6b in 1997–98, representing 11% of total merchandise exports. Other major exports were gold (\$6.3b, 7% of total merchandise exports), iron ore (\$3.8b, 4.3%) and bauxite/alumina (\$3.3b, 3.7%).

Commodities for which export earnings increased during 1997–98 included gold, which increased \$1.5b (33%), coking coal \$935m (19%), aluminium \$748m (36%), steaming coal \$671m

(22%), and iron ore \$635m (20%). In most cases both increased export volumes and commodity prices contributed to increases in export values.

Minerals experiencing a decline in export earnings in 1997–98 included manganese ore, down \$73m (32%) and refinery petroleum products, down \$49m (4%). Significantly lower export volumes contributed to most of the falls in export earnings.

In 1997–98 export volumes of crude oil and other refinery feedstocks increased by 19% to 14,800 megalitres (ML), liquefied petroleum gas (LPG) by 17% to 2,800 ML and automotive gasoline by 20% to 1,500 ML. Export earnings from crude oil and condensate increased by 5% to \$2.0b, from liquefied natural gas (LNG) by 4% to \$1.6b in 1997–98 and from LPG by 3% to \$367m.

## Imports

Mineral resource imports were valued at \$8.5b in 1997–98, an increase of \$1.2b (16%) over 1996–97. The main contributors to the rise in import values were silver, up \$29m (414%) to \$36m, gold, up \$1.4b (238%) to \$2.0b, iron ore, up \$36m (40%) to \$127m and diamonds, up \$22m (15%) to \$170m.

Imports of petroleum products fell by 27%. This included automotive gasoline (down 67%), aviation turbine fuel (down 64%) and LPG (down 13%). Imports of crude oil and other refinery feedstocks increased by 1%, the main sources being Indonesia (7,100 ML), Saudi Arabia (3,700 ML), Viet Nam (3,300 ML), United Arab Emirates (3,100 ML) and Papua New Guinea (3,000 ML).

## Review of selected commodities

The information in this section has been largely drawn from the publication *Australia's Identified Mineral Resources, 1998* of the former Bureau of Resource Sciences (BRS). The Mineral Resources and Energy Branch of the BRS, which produced this publication, has now been incorporated into the Minerals and Energy Division of the Australian Geological Survey Organisation (AGSO).

### Bauxite and alumina

Australia is the world's largest refiner of bauxite and the fourth largest producer of primary aluminium.

Generally Australian bauxite ore is not sold, but is processed to alumina for sale or for conversion to aluminium. In 1996–97 Australia produced 43 megatonnes (Mt) of bauxite, 13.3 Mt of alumina and 1.4 Mt of primary aluminium.

In 1997–98 aluminium ranked fifth in value among the major commodity exports, with 1.3 Mt valued at \$3.3b and representing 4% of total merchandise exports. Alumina ranked sixth with 10 Mt, valued at \$2.8b or 3% of total merchandise exports. Japan was the major market for aluminium, taking 38% of exports.

Bauxite mining employed 1,786 people nationally at the end of June 1997.

### Coal

In 1997 Australia produced 271 Mt of raw coal which yielded 217 Mt of saleable coal, increases of 7.5% and 8.5%, respectively, over 1996. About 72% of Australia's raw coal production came from

open-cut mines. In 1997 Australia accounted for about 7% of the world's recoverable Economic Demonstrated Resources (EDR) of black coal and produced about 6% of the world's saleable black coal output.

Large quantities of black coal are mined in New South Wales and Queensland for both domestic and overseas consumption. The major use of black coal in Australia is for electricity generation; other uses include coke making for the iron and steel industry and as a source of heat in cement manufacturing.

The coal industry was the single largest employer in the mining sector at the end of June 1997, with 26,000 employees, or 47% of the total. Black coal was Australia's biggest export earning commodity in 1997–98, accounting for \$9.6b or 11% of the total value of merchandise exports. The main market for Australian coal was Japan, which purchased 74 Mt of Australian coal at a cost of \$4.2b (44% of total sales).

Significant brown coal deposits occur in Victoria, South Australia, Western Australia and Tasmania. Brown coal is mined only in Victoria where it is used predominantly for electricity generation. Another important use is for the production of briquettes used for industrial and domestic heating in Australia and overseas.

In 1997, Australian brown coal production was about 61 Mt, up from 54 Mt in 1996. There are plans to develop a brown coal mine at Maryvale in the LaTrobe Valley, Victoria's first new coal mine in almost two decades. The first coal is expected to be mined in 2004.

### Copper

Established copper provinces, such as northwest Queensland, and other areas of the country are continuing to support new discoveries as well as extensions of resources at known deposits. As a consequence, Australia has developed over the last decade into a world-ranking copper-producing nation.

Australia has the world's third largest EDR of copper, and ranks fifth in the world as a copper producer. In 1997 Australia's mine production was 545,000 tonnes (t) of contained copper, 4% higher than in 1996.

Copper exports contribute just over \$1.0b annually to the Australian economy and represent about 3% of total export earnings from minerals. Copper mining employed 2,605 persons at the

end of June 1997, representing 10% of total employees in the metal ore mining sector.

## Diamonds

Australia's diamond production is the largest in the world for both gem/near gem and natural industrial diamond categories, with most production from the Argyle open pit and a minor contribution from the nearby Argyle Alluvials operation.

In 1997–98 Australia produced 43 megacarats (Mct) of diamonds, an increase of 16% over the previous year.

Exports of diamonds (sorted and unsorted) in 1997–98 totalled \$625m. This represents an increase of 9% over the 1996-97 value. The two main destinations were Belgium-Luxembourg and the United Kingdom.

## Gold

Using Australian production and the United States Geological Survey (USGS) estimates for other countries, world production of gold for 1997 was 2,315 t, an increase of 65 t on the previous year. South Africa was again the leading producer with 41% of world output, followed by the USA with 14% and Australia with 13.6%.

Preliminary figures for 1997 published by the Australian Bureau of Agricultural and Resource Economics (ABARE) showed an 8% increase in Australian production to 311 t. Western Australia dominated with 238 t, just over 76% of total output. Ranking of the other States was: Queensland 29 t (9.3% of total Australian production), Northern Territory 24 t (7.6%), New South Wales 11 t (3.8%), Victoria 5 t (1.5%), Tasmania 4 t (1.2%) and South Australia 1 t (0.3%).

In 1997–98 gold was Australia's second biggest export earning commodity, after black coal, accounting for 7% of total merchandise exports at a value of \$6.3b. The main markets were Republic of Korea (\$1.4b) and Singapore (\$1.3b).

The low gold prices prevailing throughout most of 1997 dominated industry operations and planning. Although many producers are protected to a greater or lesser extent by their hedge book, the low prices caused some closures.

The gold mining industry employed 8,152 people at the end of June 1997, making it the second largest employer in the mining sector behind the coal industry.

## Iron ore

Resources of iron ore occur in all Australian States and the Northern Territory. Western Australia is the premier iron ore State, but important resources are present in South Australia and Tasmania. Activity in all three States was strong in 1997, with Tasmania, in particular, receiving a major boost through the redevelopment of the Savage River operations.

Preliminary figures published by ABARE put Australia's iron ore production in 1997 at 158 Mt. This was composed of 155 Mt from Western Australia, 3 Mt from South Australia and 0.2 Mt from Tasmania. The relatively small output from Tasmania resulted from the temporary closure of the Savage River operations. Tasmanian output began again in the December quarter as the mine came back on stream under new ownership.

China was again the world's largest producer with 25% of world ore production. Brazil, with 18%, was the second largest producer and Australia was third with 15%.

Iron ore accounted for \$3.8b or 4% of total merchandise exports in 1997–98. Japan was Australia's largest market, taking 44% of exports in dollar terms. Iron ore mining employed 5,740 people at the end of June 1997.

## Manganese ore

Australia's resources of manganese ore are the basis of a major mineral export industry as well as a significant domestic ferromanganese, silicomanganese and manganese dioxide processing industry.

Despite a 50% reduction in manganese ore production from the east Pilbara, Australian manganese ore production increased slightly to more than 2 Mt in 1997. When estimated in terms of contained manganese in ore, Australia is the world's third largest producer after South Africa and China. In 1997, Australia contributed an estimated 13% of world production.

In 1996–97 1,797 t of manganese ores and concentrates were exported (78% of total production), valued at \$231m.



## Mineral sands

The principal components of mineral sands are rutile, ilmenite and zircon. Australia is the world's leading producer and largest exporter of all three minerals. Rutile and ilmenite are titanium minerals used mainly in the production of titanium dioxide pigment. Zircon is used as an opacifier for glazes on ceramic tiles, in refractories and in the foundry industry.

In 1997 Australia produced 2.2 Mt of ilmenite, 226,000 t of rutile and 424,000 t of zircon. Although the bulk of Australia's rutile and zircon production is exported, only about 50% of the ilmenite output is shipped overseas. The ilmenite that is not exported is upgraded to synthetic rutile containing 92–93% titanium dioxide (TiO<sub>2</sub>). In 1996–97 the export value of all mineral sands totalled \$926m.

At the end of 1997 Australia had 24%, 42% and 37% of the world's EDR of ilmenite, rutile and zircon respectively, and produced about 35%, 58% and 49%, respectively of world output of these minerals.

The mineral sand mining industry employed 2,204 persons at the end of June 1997.

## Nickel

Australia's share of world EDR of nickel increased to 16% in 1997, up from 13% in 1996. Australia is now the world's largest holder of EDR of nickel.

Australia accounted for about 12% of the estimated world nickel output of 1.1 Mt in 1997, and was the fourth largest producer after Russia, Canada and New Caledonia. Australian exports of refined nickel in 1996–97 totalled \$1.1b.

## Tantalum

Australia is the world's largest producer of tantalum, with an output of about 302 t of contained tantalum in 1997. This was about 74% of the total world output of 407 t. The main use of tantalum is in the electronics industry, particularly in the manufacture of tantalum capacitors.

Exports of tantalum, niobium ores and concentrates in 1997–98 were 1,648 t, an increase of 958 t over 1996–97. The total value of tantalum exports in 1997–98 was \$42m, an increase of 56% over 1996–97.

## Uranium

Australia has the world's largest resources of uranium in the low cost Reasonably Assured Resources (RAR) category, with 26% of world resources in this category.

About 95% of Australia's total uranium resources in the low cost RAR category are within the following six deposits: Olympic Dam, South Australia; Ranger, Jabiluka and Koongarra in the Alligator Rivers Region, Northern Territory; and Kintyre and Yeelirrie, Western Australia.

Uranium oxide is currently produced at two mining/milling operations: Ranger and Olympic Dam. Australia's total production for 1997 was a record high of 5,489 tonnes of uranium (t U), 10% greater than in 1996, of which Ranger produced 4,063 t U and Olympic Dam produced 1,426 t U.

Following removal of the 'three mines' policy in March 1996, the Government received formal proposals to develop four new uranium mines: Jabiluka deposit, Beverley deposit, Honeymoon deposit and Kintyre deposit. Energy Resources of Australia Ltd completed the first stage of the Jabiluka mine development in mid-1999. Beverley deposit production is proposed to commence in the year 2000. Subject to necessary approvals being obtained, production at Honeymoon deposit is scheduled to start in 2000.

Exports of uranium oxide in 1997–98 totalled 6,415 t and earned \$288m. All exports of Australian uranium are subject to stringent safeguards which provide assurance that none of the material is diverted from peaceful uses.

## Zinc, lead, silver

Australia has the world's largest EDR of zinc (19%), lead (27%) and silver (15%). As a producer, Australia ranks first in the world for lead, second for zinc and fifth for silver. Australia's gold mines are significant contributors to silver production.

EDR estimated for zinc (36.3 Mt), lead (17.5 Mt) and silver (41.5 kilotonnes (kt)) fell in 1997 by 9%, 6% and 4% respectively from 1996 levels, as a result of production and reassessment of resources at major mines. Australia's total identified resource stocks of zinc (86.3 Mt) remained steady, but those of lead (54.6 Mt) and silver (92 kt) each fell by 1%.

Production is mainly from mines at Cannington (which commenced in October 1997), Hilton and Mount Isa in Queensland; McArthur River in the Northern Territory; Broken Hill and Elura in New South Wales; Hellyer and Rosebery in Tasmania; and Scuddles in Western Australia.

The silver-lead-zinc mining industry had employment of 3,146 people at the end of June 1997.

### Crude oil and condensate

Australian production of crude oil and condensate in 1997–98 was a record 34,000 ML or 585,000 barrels per day, an increase of 9% over 1996–97. Production of crude oil from the Gippsland Basin accounted for 50% (or 12,769 ML) of total Australian crude oil production. The North West Shelf was the major producer of condensate during 1997–98 with 80% (6,545 ML) of Australian production sourced in that region.

In 1997–98 exports of crude oil and condensate increased by 5% to \$2.0b, while export volumes of crude oil and other refinery feedstocks increased by 19% to 14,800 ML. The main markets were USA, Japan and Taiwan.

### Liquefied petroleum gas

LPG is a valuable co-product of oil and gas production and petroleum refining. The major constituents of LPG are propane and iso- and normal-butane, which are gaseous at normal temperatures and pressures, and are easily liquefied at moderate pressures or reduced temperatures. Operations involving LPG are expensive in relation to other liquid fuels because LPG has to be refrigerated or pressurised when transported and stored. LPG is an alternative transport fuel for high mileage vehicles in urban areas, as well as a petrochemical feedstock and domestic fuel.

Production of naturally occurring LPG in Australia in 1997–98 was 4,437 ML. The major contributors were the Gippsland Basin (2,292 ML or 52% of total production) and the North West Shelf (1,280 ML or 29% of total production).

Australian LPG exports in 1997–98 totalled 2,800ML, an increase of 17% over 1996–97. Export earnings from LPG in 1997–98 were \$367m, up \$11m (3%) on the previous year.

### Natural gas

During 1997–98, 30,323 million cubic metres (Mm<sup>3</sup>) of natural gas (including liquefied natural gas) were produced for domestic consumption and export, an increase of 3% from 1996–97 production.

Export earnings from LNG increased by 4% to \$1.6b in 1997–98.

### Minerals processing and treatment

As few minerals can be directly used in the form in which they are mined, most minerals undergo processing and treatment before use.

Table 17.5 shows the production of the main manufactured products of mineral origin during recent years.

### Mineral resources and geology

Australia has the world's largest economically recoverable resources of lead, mineral sands (ilmenite, rutile and zircon), nickel, silver, tantalum, uranium and zinc. In addition, Australia's economic demonstrated resources are within the top six world-wide for bauxite, black coal, brown coal, cobalt, copper, gold, iron ore, lithium, manganese ore, nickel, rare earths, industrial diamonds and vanadium. Australia has almost all of the world's opal resources, and a significant share of the world's sapphire resources.

The diversity of Australian geology provides the basis for its wide range of economically important minerals and variety of deposit types. Its classified geological settings range from major Precambrian Shields composed of Archaean (older than 2.5 billion years) granite greenstone terrains, through to extensive Proterozoic (2.5 to 0.5 billion years) basins and metamorphic belts, to the younger Palaeozoic fold belts (0.5 to 0.25 billion years). Most significant mineral deposits discovered in the past two decades were hidden beneath cover and this is likely to be the pattern in the future, because prospective rocks in some 80% of the continent are concealed by veneers of deeply weathered rocks or sedimentary strata. The weathering occurred particularly during the Mesozoic and Cainozoic periods (0.25 billion years to the present).

**17.5 PRODUCTION OF PRINCIPAL MANUFACTURED PRODUCTS OF MINERAL ORIGIN**

	Units	1993-94	1994-95	1995-96	1996-97	1997-98
<b>METALS</b>						
Non-ferrous						
Alumina	'000 t	12 761	12 940	13 293	13 252	13 581
Refined aluminium	'000 t	1 384	1 285	1 331	1 395	1 589
Refined copper	'000 t	351	281	300	305	284
Lead bullion(a)	'000 t	208	177	181	191	171
Refined lead	'000 t	220	205	224	202	185
Refined zinc	'000 t	316	312	330	319	304
Refined tin	t	190	455	550	570	650
Ferrous						
Pig iron	'000 t	7 209	7 449	7 554	7 545	7 928
Precious						
Refined gold	t	307	297	318	326	348
Refined silver	t	379	349	350	339	227
<b>FUELS</b>						
Petroleum products						
Diesel automotive oil	ML	11 063	11 365	12 202	12 968	13 183
Industrial and marine fuel	ML	95	129	78	45	48
Fuel oil	ML	2 263	2 431	1 998	1 795	1 662
Petrol	ML	17 724	17 911	18 358	18 084	18 589
<b>BUILDING MATERIALS</b>						
Clay bricks	m	1 814	1 860	1 455	1 467	1 532
Portland cement	'000 t	6 733	7 124	6 397	6 701	7 235
<b>CHEMICALS</b>						
Sulphuric acid	'000 t	833	n.a.	n.a.	n.a.	n.a.
Superphosphate(b)	'000 t	1 344	1 590	1 697	1 511	1 819

(a) Metallic content. (b) Double and triple superphosphate expressed in terms of single phosphate, that is 9% P equivalent.

Source: Australian Bureau of Agricultural and Resource Economics (1999); Department of Industry, Science and Resources (1999); ABS Manufacturing Production (8301.0).

The Archaean and Proterozoic basement rocks, underlying most of the western two-thirds of Australia, have been the source of much of the country's mineral wealth to date. Large deposits such as the gold and nickel mines of the Kalgoorlie region and the iron ore deposits of the Pilbara region (Western Australia); the base metal deposits at Broken Hill (New South Wales), Mount Isa (Queensland), McArthur River (Northern Territory); the copper-uranium-gold deposit at Olympic Dam (South Australia); the Argyle diamond deposit, and the uranium deposits of the Alligator Rivers area of the Northern Territory all occur in the Precambrian rock. In eastern Australia, the major deposits are of Palaeozoic age and include the base metal deposits at Elura, Cobar (New South Wales); Hellyer and Rosebery, the Mount Lyell copper-gold deposit, and the Renison tin deposit (Tasmania); and Kidston, Mount Leyshon (Queensland) and most other gold deposits. The large black coal deposits of New South Wales and Queensland are of upper Palaeozoic and Mesozoic age. Deposits formed in Tertiary times include the brown coal of Victoria; the oil shales

of eastern Queensland; the bauxite of Weipa (Queensland), Gove (Northern Territory) and the Darling Ranges (Western Australia); the lateritic nickel deposits of Queensland and Western Australia; and the mineral sands deposits of the Murray Basin (Victoria) and Eneabba (Western Australia).

The continuing discovery of world class deposits in both the established and new mineral provinces confirms Australia's high mineral potential. Major discoveries since 1990 include the Century (zinc), Carrington (lead, zinc, silver) and Ernest Henry (copper-gold) deposits in the major Carpentaria-Mount Isa base metal province; the Cadia and Ridgeway (gold-copper) deposit in central western New South Wales; and the Bronzewing (gold) and Silver Swan (nickel) deposits in the Eastern Goldfields of Western Australia.

Australia's most important petroleum basins are under Bass Strait and off north-western Australia. Petroleum has been identified in Australian sediments as old as middle Proterozoic, but the main onshore petroleum accumulations are in

sedimentary strata of middle Palaeozoic and younger ages and include the Bowen/Surat, Cooper/Eromanga, Otway and Perth Basins.

## Mineral exploration

Exploration involves the search for new ore occurrences or undiscovered oil or gas, and/or appraisal intended to delineate or greatly extend the limits of known deposits of minerals or oil or gas reservoirs by geological, geophysical, geochemical, drilling or other methods. This includes construction of shafts and adits primarily for exploration purposes, but excludes activity of a developmental or production nature. Exploration for water is excluded.

## Mineral exploration expenditure

Expenditure in Australia during the last five years on private mineral exploration other than for petroleum is summarised in table 17.6.

Between 1993–94 and 1997–98, exploration expenditure increased by 35%. While Victoria was the main contributor to this increase in

percentage terms (108%), the largest increase in expenditure was in Western Australia (\$207m). Western Australia also accounts for most of the exploration expenditure each year, varying from 54% in 1995–96 to 62% in 1997–98.

## Drilling methods used in Australia

The most common drilling method used in 1997–98 was reverse circulation, accounting for 38% (4.2 million metres) of the total. This method also accounted for the highest expenditure, contributing 39% (\$149m) of total expenditure for the year. The number of metres drilled by rotary air blast method was the second highest with 3.4 million metres (31% of total) but accounted for only 11% of total expenditure. The new category included for the 1997–98 survey, aircore/vacuum, represented 15% of total metres drilled and 9% of total expenditure.

Tables 17.7 and 17.8 show metres drilled and expenditure by drilling methods for all areas (including exploration on production leases and all other areas) by State and Territory.

**17.6 PRIVATE MINERAL EXPLORATION EXPENDITURE(a), By State/Territory**

	1993–94	1994–95	1995–96	1996–97	1997–98
State/Territory	\$m	\$m	\$m	\$m	\$m
New South Wales	73.6	79.2	80.4	94.1	88.2
Victoria	20.7	31.2	42.6	51.8	43.1
Queensland	140.2	176.0	181.0	160.7	133.2
South Australia	24.7	20.9	24.1	35.1	45.0
Western Australia	453.7	495.5	519.5	691.7	660.4
Tasmania	10.2	14.9	18.8	26.0	20.7
Northern Territory	69.5	75.8	93.9	88.9	75.9
<b>Australia</b>	<b>792.6</b>	<b>893.3</b>	<b>960.3</b>	<b>1 148.6</b>	<b>1 066.8</b>

(a) Excludes expenditure on petroleum exploration.

Source: *Actual and Expected Private Mineral Exploration, Australia (8412.0)*.

**17.7 TOTAL METRES DRILLED, By State/Territory—1997–98**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Aust.
Drilling method	'000 metres	'000 metres	'000 metres	'000 metres	'000 metres	'000 metres	'000 metres	'000 metres
Diamond	247.3	52.0	93.8	33.7	903.2	71.0	67.5	1 468.4
Reverse circulation	132.1	92.6	n.p.	92.1	3 506.6	n.p.	163.2	4 167.3
Percussion	88.5	n.p.	27.3	11.1	59.6	n.p.	n.p.	210.3
Rotary air blast	22.9	12.0	268.9	245.6	2 632.8	—	228.5	3 410.6
Aircore/Vacuum(a)	110.6	n.p.	n.p.	51.5	1 256.4	—	108.3	1 603.1
Other	20.1	—	9.3	18.7	117.0	n.p.	n.p.	199.4
<b>Total</b>	<b>621.5</b>	<b>200.6</b>	<b>609.6</b>	<b>452.7</b>	<b>8 475.6</b>	<b>94.4</b>	<b>604.8</b>	<b>11 059.1</b>

(a) Prior to 1997–98, aircore/vacuum was included in Other.

Source: *Actual and Expected Private Mineral Exploration, Australia (8412.0)*.

**17.8 TOTAL DRILLING EXPENDITURE, By State/Territory—1997–98**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Aust.
Drilling method	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Diamond	22.7	4.6	10.2	2.1	77.8	8.1	6.8	132.5
Reverse circulation	5.1	3.9	7.8	4.3	121.6	0.3	5.7	148.6
Percussion	4.4	n.p.	n.p.	n.p.	2.6	n.p.	n.p.	9.1
Rotary air blast	n.p.	0.1	5.9	3.4	28.7	n.p.	3.4	42.2
Aircore/Vacuum(a)	2.0	0.4	1.2	1.0	23.6	n.p.	n.p.	35.4
Other	n.p.	n.p.	n.p.	n.p.	5.5	—	n.p.	11.0
<b>Total</b>	<b>36.5</b>	<b>9.4</b>	<b>27.4</b>	<b>13.5</b>	<b>259.9</b>	<b>8.6</b>	<b>23.4</b>	<b>378.7</b>

(a) Prior to 1997–98, aircore/vacuum was included in Other.

Source: *Actual and Expected Private Mineral Exploration, Australia (8412.0)*.

**Petroleum exploration expenditure**

Total petroleum exploration expenditure increased by 15% from \$853m in 1996–97 to \$981m in 1997–98. Exploration expenditure on production leases fell by 50% from \$138m to \$69m, while exploration expenditure in all other areas increased by 28%, from \$715m to \$912m in 1997–98.

Offshore exploration expenditure contributed the largest increase to total petroleum exploration expenditure, up \$148m (25%) to \$749m, while onshore exploration expenditure fell by \$20m (8%) to \$232m.

Table 17.9 shows expenditure on private petroleum exploration in Australia during the last five years.

**Overseas mineral exploration**

Australian resident companies spent \$801m exploring for minerals and petroleum overseas in 1997–98, an increase of \$41m (5%) over 1996–97. Expenditure on minerals exploration (\$379m) accounted for 47% of this total expenditure.

For hard minerals, exploration for gold accounted for the highest expenditure with \$218m, followed by base metals with \$103m.

Most of the expenditure occurred in Latin America (35%) and Africa (28%) where the increases in expenditure from 1996–97 are most significant, i.e. 132% in Latin America and 90% in Africa. Expenditure also increased in other regions, except for North America (down 76%) and Indonesia (down 39%).

Table 17.10 shows overseas exploration expenditure by Australian owned companies and their subsidiaries during 1997–98.

**17.9 PRIVATE PETROLEUM EXPLORATION EXPENDITURE**

	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m
Onshore	144.5	170.8	174.8	251.9	232.2
Offshore	362.2	511.7	550.3	601.0	748.9
<b>Total</b>	<b>506.7</b>	<b>682.5</b>	<b>725.1</b>	<b>853.0</b>	<b>981.2</b>

Source: *Actual and Expected Private Mineral Exploration, Australia (8412.0)*.

**17.10 OVERSEAS EXPLORATION EXPENDITURE OF AUSTRALIAN RESIDENT COMPANIES(a)(b)—1997–98**

	North America(c)	Latin America(d)	Papua New Guinea	Indonesia	China	Other Asia	Africa	Other	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Copper, silver-lead-zinc, nickel and cobalt	13.3	25.6	n.p.	4.5	n.p.	19.8	28.9	9.1	103.2
Gold	28.2	58.5	n.p.	35.8	8.8	31.7	28.7	23.0	217.8
Iron ore	n.p.	n.p.	—	—	—	—	—	—	n.p.
Mineral sands	n.p.	—	—	—	—	n.p.	n.p.	n.p.	10.7
Tin, tungsten, scheelite and wolfram	—	—	—	—	—	—	—	—	—
Uranium	—	—	—	—	—	—	—	—	—
Coal	—	n.p.	—	n.p.	n.p.	—	—	—	n.p.
Construction materials	—	—	—	—	—	—	—	—	—
Bauxite	—	—	—	—	—	—	n.p.	—	n.p.
Diamonds	n.p.	—	—	n.p.	n.p.	—	7.1	n.p.	33.4
Other	n.p.	—	—	—	—	n.p.	n.p.	n.p.	n.p.
<b>Total</b>	<b>60.4</b>	<b>84.5</b>	<b>4.0</b>	<b>46.3</b>	<b>12.1</b>	<b>55.4</b>	<b>76.3</b>	<b>39.9</b>	<b>379.0</b>

(a) Caution should be used when making comparisons with years prior to 1995–96 as the basis of the collection is different.

(b) Excludes expenditure on petroleum exploration. (c) Includes Canada. (d) Comprises Mexico, South America and the Caribbean.

Source: *Actual and Expected Private Mineral Exploration, Australia (8412.0)*.

## Administrative and financial arrangements

### Mineral rights

Mineral rights in Australia are held by the State and Territory Governments, and the granting of exploration and mining titles is administered by them under the respective State or Territory legislation. The Commonwealth Government holds rights to minerals on Australia's continental shelf beyond coastal waters of the States and the Northern Territory, and to certain prescribed substances in the Northern Territory, within the meaning of the Atomic Energy Act (principally uranium). The Commonwealth Government has constitutional powers with respect to international trade, customs and excise, taxation and foreign investment.

### Mining and exploration for other than petroleum—legislation

#### Onshore

Each State and Territory has its own Mining Act and Regulations governing the prospecting for and working of mineral deposits. These Acts and Regulations, although similar in principle, are different in detail.

Rights to explore for minerals are awarded by granting prospecting licences and (for larger areas) exploration licences or exploration

permits. Each tenement is granted subject to conditions such as minimum exploration expenditure each year, methods of prospecting and the requirement for progressive relinquishment of area held. The tenure is usually limited. Most States and Territories make provision for a Miner's Right which permits an individual to prospect or fossick for minerals on Crown Land.

On 3 June 1992 a decision by the High Court of Australia held that the common law of Australia recognised a form of native land title. Following this, the Commonwealth enacted the *Native Title Act 1993*. The Act recognises and protects native title rights and establishes procedures to determine those rights and to ensure that those rights, where they continue to exist, are taken into account in future land management administration.

Existing rights held by non-Indigenous people are also protected by the Act. While the Act does not provide a veto over activities on Aboriginal land, it does enable Aboriginal people to negotiate in relation to proposed activities.

On 23 December 1996, the High Court released its decision in the Wik Case. The decision found that the grant of certain pastoral leases did not give the lessee exclusive possession of the leased areas and did not necessarily extinguish any native title that may be held in respect of those areas.



The Native Title Amendment Bill was passed in July 1998, and most of its provisions came into operation on 30 September 1998. The Amendment Act made wide-ranging workability improvements and implemented the High Court's Wik decision. It also enabled the States and Territories to integrate native title requirements into their land administration systems.

### **Offshore**

Following the enactment of the *Seas and Submerged Lands Act 1973*, the High Court confirmed that the Commonwealth has sovereignty over the territorial sea and sovereign rights over the resources of the whole of Australia's continental shelf. However, in the Offshore Constitutional Settlement between the Commonwealth and the States reached in June 1979, it was agreed that responsibility for mining of the seabed of coastal waters (i.e. the area landward of three nautical miles from the baseline of the territorial sea) should lie with the States and the Northern Territory, and should be governed by their legislation, while the Commonwealth should have responsibility for areas beyond. The *Offshore Minerals Act 1994*, which replaced the *Minerals (Submerged Lands) Act 1981*, provides for the granting and administration of exploration and mining licences in those areas of sea covered by Commonwealth legislation.

### **Petroleum mining and exploration—legislation**

#### **Onshore and coastal waters**

In Australian onshore and coastal waters areas, full control of petroleum mining rights is vested with the relevant State or Territory Government. Any organisation or individual proposing to undertake petroleum exploration or development must first satisfy the relevant government that it has access to the necessary financial and technical resources to undertake the proposed operations.

#### **Australian offshore areas**

The situation is the same as detailed above for mining exploration, with the Commonwealth having sovereignty, but administrative responsibility shared between the Commonwealth and the States; in the case of petroleum, under the *Petroleum (Submerged Lands) Act 1967*.

The offshore mining and exploration legislation provides for:

- exploration permits, providing exclusive exploration rights over a specific area; and
- production licences to authorise development and commercial production from discovered fields; and retention leases to allow security of tenure over discoveries not currently regarded as economic to develop.

Projects in the Australian Offshore areas, except in the area around the North West Shelf Gas Project, are subject to Petroleum Resource Rent Taxation (PRRT), as described below under *Secondary tax arrangements in the petroleum industry*.

The Timor Gap Zone of Cooperation Treaty designates an area of the Continental Shelf between Australia and East Timor subject to control by a Joint Authority. Revenue collected from petroleum production taxation is shared. Following separation of East Timor from Indonesia, the United Nations will be assuming, on behalf of the people of East Timor, the rights and obligations under the Treaty formerly exercised by Indonesia.

### **Mineral royalties**

Mineral resources are owned by the Crown in Australia, either by the State and Territory Governments within their borders (and up to three nautical miles offshore), or by the Commonwealth Government in offshore areas outside the three nautical mile limit. Accordingly, royalties are collected by State and Territory Governments for mining onshore and up to three nautical miles offshore, and by the Commonwealth outside that limit.

State royalties regulations vary in regard to types of royalties, rates levied and those commodities subject to royalties.

In recent years, some State Governments have negotiated special royalty arrangements with companies which are seeking mineral leases for large-scale developments. These royalty rates may vary, depending on whether production is for export or for domestic processing. Examples of this type of royalty agreement are the Argyle Project in Western Australia and the Olympic Dam mine in South Australia.

## Crude oil marketing and pricing arrangements

Petroleum refiners and producers are free to negotiate the quantities and prices of crude oil and other petroleum they buy and sell. Crude oil producers can export crude oil as an alternative to selling on the domestic market.

Decisions on major refinery investment associated with changes in domestic crude availability have led to a significant program of investment in upgraded plant and equipment.

The price of crude oil used for the purposes of excise tax assessment is the monthly volume-weighted average of realised prices of sales of oil from the area subject to excise.

## Secondary tax arrangements in the petroleum industry

In addition to general taxation arrangements applying to companies in Australia, petroleum production projects are subject to secondary taxes. The type and rate of secondary taxation (resource rent tax, resource rent royalty, or excise and royalties) depends on the location of the petroleum resource, the date of discovery of the petroleum reservoir and the date upon which production commenced.

A profit based Petroleum Resource Rent Tax (PRRT) applies to petroleum projects in the majority of Australia's offshore areas beyond the State's territorial seas. The PRRT is levied at a rate of 40% of net revenues from successful projects which have recovered outlays, plus a threshold rate of return. The North West Shelf production licence areas and associated exploration permits are excluded. Where PRRT applies, it replaces excise and royalties which would otherwise have been levied.

A Resource Rent Royalty (RRR) may be applied to onshore petroleum projects by State Governments. Where RRR is applied the legislation provides for the Commonwealth to waive its crude oil excise whenever the relevant State Government negotiates an acceptable RRR agreement with the project producers and agrees to a satisfactory revenue sharing formula with the Commonwealth.

Excise applies to crude oil production from the North West Shelf projects offshore and from all onshore areas (except Barrow Island where a RRR applies).

Crude oil excise is based on the annual level of crude oil sales from individual production areas and is levied as a percentage of the realised price received by producers.

Different excise scales are applicable to oil production depending upon the date of discovery of the production area and the date when the area was first developed. The first 30 million barrels of crude oil production from a field are exempt from excise. Production beyond this level is subject to the appropriate excise rate.

Oil discovered before 18 September 1975 (old oil) attracts a higher rate of excise than oil discovered on or after this date (new oil). An intermediate scale also applies to oil produced from old oil fields that were not developed as at 23 October 1984. However, in the case of all onshore fields that commenced production after 1 July 1987, production in excess of 30 million barrels is subject to new oil excise.

A Commonwealth Royalty is also levied on offshore petroleum production from the North West Shelf project area. Proceeds are shared by the Commonwealth with Western Australia. Onshore petroleum rights are vested in the State and Northern Territory Governments, and the Commonwealth does not, in general, receive a share of this royalty.

## Incentives to encourage petroleum exploration and development

Australia's full petroleum potential is yet to be determined. Government measures to encourage investment in the petroleum industry include:

- the Australian Offshore Petroleum Strategy released in April 1999, which includes a program of regularly releasing exploration areas in prospective basins;
- an internationally competitive profit-related tax system which recognises the risks of exploration;
- inexpensive access for explorers to geological and geophysical data;
- pre-competitive geophysical work undertaken by the Australian Geological Survey Organisation;
- transparent, predictable, and practical regulatory requirements;
- Government facilitation of investment, including fast-tracking of approvals process for major projects.



## Administrative arrangements

The Commonwealth Minister for Industry, Science and Resources has portfolio responsibility for national energy policy matters, including the commercial development of hydrocarbon fuels and minerals in the Australian offshore area. The Department of Industry, Science and Resources provides support for a number of advisory bodies including the Australian and New Zealand Minerals and Energy Council, and the National Oil Supplies Emergency Committee.

The Department is also responsible for the implementation of action required from Australia's membership of the International Energy Agency and for the national system of accounting for control of nuclear materials under Australia's Agreement with the International Atomic Energy Agency.

## Research

Research into exploration, mining, ore dressing and metallurgy is conducted by government bodies, universities, private enterprise, and by the combined efforts of all these. A summary of the main organisations and their functions follows.

### Australian Geological Survey Organisation (AGSO)

AGSO is Australia's national geoscientific agency. In July 1999, it became a prescribed agency under the Financial Management and Accountability Act within the Department of Industry, Science and Resources. It has its own outcome/output structure against which it reports to the Government and the Parliament.

The outcome for AGSO is an enhanced potential for the Australian community to obtain economic, social and environmental benefits through the application of first class geoscientific research and information.

AGSO's Geoscience Research and Information services are:

- petroleum exploration promotion and technical policy advice (32% of outputs);
- minerals exploration promotion and technical policy advice (38%);

- marine-zone management information (15%); and
- geohazards and geomagnetism information (15%).

AGSO provides expert geoscientific advice on minerals, petroleum, coastal and marine issues and seismological and geological hazard analysis. AGSO contributes to Commonwealth Government involvement in international geoscientific activities and development assistance programs. AGSO also has a specific role in the technical definition of Australia's marine jurisdiction under the UN Convention on the Law of the Sea.

AGSO's activities include regional mapping and analysis of major mineral provinces and petroleum basins; regional environmental mapping; the operation of geophysical observatories; and the development of an accessible national geoscience information system.

AGSO maintains two large national databases which are accessed by Commonwealth and State government departments, the mining industry and the wider community. The mineral occurrence location database MINLOC contains information on more than 50,000 Australian mineral occurrences, and MINRES, a mineral resources database, contains comprehensive information on the mineral resources of some 1,500 Australian mineral deposits.

### Commonwealth Scientific and Industrial Research Organisation (CSIRO)

CSIRO contributes to the development of sustainable and competitive minerals and energy industries in Australia through research and development activities.

This is achieved by the provision of research and development capabilities to support existing and emerging industries, as well as providing for the next generation of technology, products and processes. At the same time, CSIRO endeavours to bring about safe and ecologically sustainable development through research and advice on environmental issues related to client industries. By working closely with industry, government and other organisations, CSIRO helps transform research outcomes into new or improved business opportunities.

The research activities are conducted by CSIRO divisions as part of work programs in support of the following sectors defined by CSIRO:

- the Minerals Exploration and Mining sector;
- the Mineral Processing and Metal Production sector;
- the Petroleum sector; and
- the Energy sector,

under the guidance of the respective industry-based Sector Advisory Committees.

See *Chapter 25, Science and innovation* for more information on the CSIRO.

### **AMIRA International (Australian Mineral Industries Research Association Limited)**

AMIRA International is a not-for-profit private sector company, established in 1959 to facilitate the technical advancement of its members in the mineral, coal, petroleum and associated industries. It has membership and support of about 100 companies in Australia and internationally.

AMIRA International develops and manages jointly funded research projects on a fee for service basis. Project sponsors are required to be AMIRA members. Typically, at any one time there are 75 projects under management valued at \$35m.

Member benefits include:

- participation in the development and design of research projects;
- access to the latest information on diverse, current, state-of-the-art technologies;
- financial leverage from the pooling of resources, thereby allowing for larger projects to be undertaken than any one company could undertake alone;
- quarterly reporting of all current AMIRA International projects and proposed projects;
- networking with other companies and a cross-section of researchers in diverse

disciplines—often in multifaceted projects involving a range of institutions;

- access for recruitment to industry orientated, highly trained and motivated graduates and post-doctorate researchers;
- use of Australian and international research infrastructure.

### **Australian Bureau of Agricultural and Resource Economics (ABARE)**

ABARE is a professionally independent agency devoted to applied economic research.

For over 50 years ABARE has worked with industry and government to provide stakeholders in Australia's rural and resource industries with up to date public policy analysis and commodity forecasts.

ABARE's research seeks to clearly and independently identify the benefits and costs of alternative policy options for consideration by government and private decision makers. ABARE's data about domestic and international economic performance help clients achieve increased productivity, enhanced value and improved market access.

ABARE services include:

- deriving supply and demand projections;
- assessing the outlook for commodity prices;
- examining patterns of national and world production and consumption;
- analysing the impact of economic policies;
- developing analytical computer programs and economic policies;
- undertaking regional and environmental economic assessments; and
- providing economic assessments of factors affecting the competitiveness of the economic sector.

ABARE undertakes economic research on issues affecting the full range of major minerals, energy, agricultural and natural resources industries, as well as on climate change, and on macroeconomic, microeconomic and trade issues relating to these industries.

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Australian Institute of Petroleum, <http://www.aip.com.au>

Australian Mineral Industries Research Association Limited, <http://www.amira.com.au>

Commonwealth Department of Industry, Science and Resources, <http://www.isr.gov.au>

Commonwealth Scientific and Industrial Research Organisation (CSIRO), <http://www.csiro.au>

Joint Coal Board, <http://www.jcb.org.au>

### Other sources

State government departments and instrumentalities are important sources of minerals and energy data, particularly at the regional level, while a number of private corporations and other entities operating within the mining and energy fields publish or make available a significant amount of information.

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## Introduction

The energy sector encompasses all activities relating to the production, transformation, distribution and use of energy. It is a major sector of the economy, providing employment, investment opportunities and export earnings. In addition, it provides services to other industries and the household sector. In 1998–99, energy products accounted for approximately 17% of Australia's exports.

In recent years, there has been growing interest (both within Australia and internationally) in the reform of energy markets, with the aim of increasing the efficiency of the energy sector and delivering benefits to consumers, industry and the economy (see the article at the end of this chapter on reforms in the electricity and gas industries). National and international policy responses to the prospect of global climate change also contribute to the significant changes affecting the Australian energy sector.

Energy production in Australia is heavily reliant on fossil fuels, particularly coal, but also includes crude oil and, increasingly, natural gas. Between 1986 and 1996, Australia increased its total energy production by more than 40%, as did Canada and Japan. The largest increase for Australia, Canada and the United Kingdom was in natural gas

production, each of these countries increasing production by over 100%. Overall, however, coal production dominates total energy production in Australia. Table 18.1 shows energy production for selected countries in 1995–96.

Although total energy consumption is relatively small by world standards, Australia had a greater rate of increase in consumption than most other countries between 1986 and 1996 (31%). This was spread evenly across industry, transport and other sectors. Table 18.2 shows energy consumption for selected countries in 1995–96.

Energy intensity is an indicator of efficiency in energy production; it is calculated by dividing the total primary energy supply (TPES) by gross domestic product (GDP). Using this measure, a fall in energy intensity would indicate an improvement in energy efficiency. This may occur if the level of economic activity and sectoral composition remain the same but less energy is used, or if there is increased production relative to the amount of energy being used.

Graph 18.3 shows a general downward trend in energy intensity for selected countries. Since the mid-1970s, Australia's energy intensity has been higher than in most other International Energy Agency (IEA) participating countries. Japan's overall low energy intensity may in part be due to the relatively low number of motor vehicles per capita compared to the USA and Australia.

**18.1 ENERGY PRODUCTION FOR SELECTED COUNTRIES—1995–96**

	Australia	Canada	Japan	Netherlands	United Kingdom	United States of America
Nuclear						
Million tonnes of oil equivalent	0.0	24.2	78.8	1.1	24.7	186.4
Per cent change since 1986	0.0	26.0	79.6	-1.3	60.2	63.0
Coal						
Million tonnes of oil equivalent	129.9	41.6	3.6	0.0	31.1	547.0
Per cent change since 1986	45.5	32.6	-61.9	0.0	-50.1	16.9
Oil						
Million tonnes of oil equivalent	27.5	116.9	0.8	3.2	135.9	399.0
Per cent change since 1986	-3.1	33.2	15.8	-37.1	3.1	-19.8
Natural gas						
Million tonnes of oil equivalent	25.4	135.1	2.0	68.3	75.8	440.2
Per cent change since 1986	107.0	105.3	5.9	22.1	102.8	17.1
Other(a)						
Million tonnes of oil equivalent	6.2	39.5	17.4	0.8	1.6	114.8
Per cent change since 1986	27.8	11.1	26.1	>500.0	289.3	13.5
Total						
Million tonnes of oil equivalent	189.0	357.3	102.5	73.4	269.1	1 687.3
Per cent change since 1986	40.2	49.1	47.3	17.7	8.8	8.4

(a) Includes hydro, geothermal, solar, wind, combustible renewables and waste.

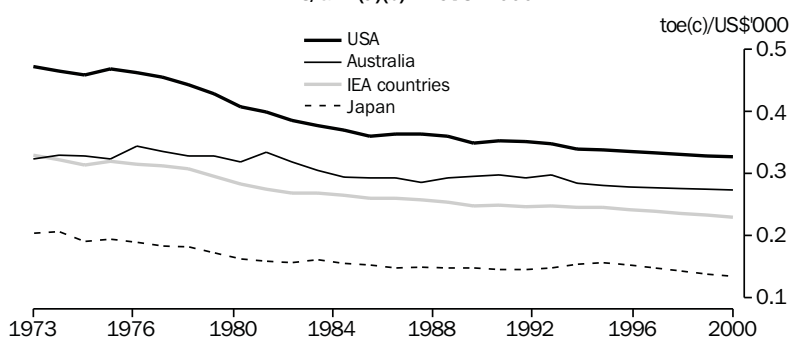
Source: International Energy Agency; Organisation for Economic Co-operation and Development, 1998.

## 18.2 ENERGY CONSUMPTION FOR SELECTED COUNTRIES—1995–96

	Australia	Canada	Japan	Netherlands	United Kingdom	United States of America
Industry						
Million tonnes of oil equivalent	26.0	68.4	143.3	20.5	46.0	424.9
Per cent change since 1986	32.7	13.3	22.5	1.5	7.4	0.9
Transport						
Million tonnes of oil equivalent	26.1	50.7	90.2	13.4	50.2	562.8
Per cent change since 1986	29.4	26.7	50.2	41.9	27.2	20.9
Other						
Million tonnes of oil equivalent	14.1	62.8	103.6	25.2	66.2	455.8
Per cent change since 1986	31.3	22.3	41.2	20.2	11.9	15.4
Total						
Million tonnes of oil equivalent	66.1	181.9	337.1	59.1	162.4	1 443.5
Per cent change since 1986	31.1	19.9	34.6	16.8	14.8	12.6

Source: International Energy Agency; Organisation for Economic Co-operation and Development, 1998.

## 18.3 ENERGY INTENSITY FOR SELECTED COUNTRIES, TPES/GDP(a)(b)—1973–2000



(a) Total primary energy supply. (b) 1990 prices and exchange rates. (c) Tonnes of oil equivalent.

Source: International Energy Agency; OECD.

## Energy resources

Australia is well endowed with both renewable and non-renewable energy resources. Australia's black and brown coal resources, in particular, account for about 8% and 15%, respectively, of the world's total reserves. Low cost uranium sources and vast natural gas reserves also contribute to Australia's role as a major producer and exporter of these resources.

Overall, Australia appears well placed for future development of fossil fuel resources. Table 18.4 presents estimates of demonstrated (economic and sub-economic) resources at five yearly intervals from 1985. Black coal has an estimated life span of over 200 years, and brown coal over 800 years at current production levels. Crude oil and condensate reserves are the most limited and could be exhausted within two decades. At the end of 1995, Australia had already produced an average of about 52% of its assessed crude oil resources, 12% of its assessed condensate resources and 9% of its assessed gas resources.

Based on demonstrated economic resources, uranium has an estimated life span of over 100 years. Additions to demonstrated resources made at one deposit in 1993 have resulted in the increased reported levels of uranium resources since then.

Table 18.5 presents Australia's production of energy resources from 1995–96 to 1997–98. Overall production has increased 12% since 1995–96, with the largest increases occurring in uranium production and black and brown coal production. Black coal has consistently accounted for about 48% of total energy production for Australia. Uranium was the second largest contributor to Australian production with 22% of the total in 1997–98. Natural gas and crude oil each contributed about 10% of total energy production for the three years reported. It is expected that natural gas production will increase over the short term to meet the demands of the domestic market.

**18.4 AUSTRALIA'S DEMONSTRATED ENERGY RESOURCES AND PRODUCTION, By Resource Type**

	Unit	Demonstrated Resources				Production 1997
		1985	1990	1995	1997	
Black coal	Gt	35	55	54	55	0.27
Brown coal	Gt	44	45	44	44	0.06
Crude oil(a)	Gl	377	487	550	517	32.90
Natural gas	Bcm	1 530	2 055	2 362	2 344	30.00
Liquid petroleum gas	Gl	98	209	234	251	4.10
Uranium	kt	521	529	706	708	6.50

(a) Includes condensate.

Source: Mineral Account, Australia (4608.0); Bureau of Resource Sciences, 1998.

**18.5 ENERGY RESOURCES EXTRACTED—1995–96 to 1997–98**

	1995–96		1996–97		1997–98	
	Petajoules	%	Petajoules	%	Petajoules	%
Black coal	5 232.0	48.3	5 580.0	47.6	5 885.0	48.4
Brown coal	514.4	4.7	559.1	4.8	631.6	5.2
Uranium	2 399.4	22.1	2 817.7	24.1	2 724.6	22.4
Crude oil	1 119.3	10.3	1 148.8	9.8	1 256.6	10.3
Natural gas	1 209.1	11.2	1 219.8	10.4	1 272.0	10.4
Liquid petroleum gas	96.7	0.9	100.4	0.9	117.6	1.0
Renewables	271.9	2.5	284.9	2.4	283.7	2.3
<b>Total</b>	<b>10 842.8</b>	<b>100.0</b>	<b>11 710.7</b>	<b>100.0</b>	<b>12 171.0</b>	<b>100.0</b>

Source: Australian Bureau of Agricultural and Resource Economics, 1999.

Australia also has great potential for developing renewable energy sources, with a favourable climate for solar applications as well as operating landfill and hydro power generating sites. Table 18.6 presents estimates of production by renewable energy sources compiled for 1995–96. Renewable energy production has been estimated at just over 2% of total energy production since 1995–96.

Bagasse, wood and hydro are the largest contributors to energy production from renewable sources. Hydro power provides around 15% of Australia's electricity generation, with total installed capacity of almost 7,580 megawatts. The two most important producers of hydro-electricity are the Snowy Mountains Hydro-Electric Authority and the Hydro-Electric Corporation of Tasmania. The contribution of landfill gas and sewage gas has been increasing over recent years, and combined is now greater than solar water heaters and solar collectors for swimming pools. The renewable energy industry is estimated to have sold about \$850m worth of goods and services in 1995–96, including exports.

**18.6 ENERGY PRODUCTION FROM RENEWABLE SOURCES—1995–96**

	Total energy production	Value of industry (sales)
	PJ	\$m
Bagasse	90.3	20
Macro-hydro	54.8	490
Residential wood	82.1	(a)140
Industrial wood	27.6	(b)
Landfill methane	3.5	8
Solar water heaters	2.3	52
Solar collectors (swimming pools)	1.4	5
Sewage gas	0.3	1
Ethanol	0.3	6
Photovoltaics	0.09	92
Wind	0.02	(c)1
<b>Total renewables(d)</b>	<b>262.7</b>	<b>(e)846</b>

(a) Includes residential and industrial wood heaters.

(b) Included in residential wood. (c) Includes small hydro.

(d) Total does not equal total reported in table 18.5 due to use of different data sources. (e) Includes consultancies valued at \$31m.

Source: Department of Primary Industries and Energy, 1998.



## 18.7 EXPORTS OF ENERGY PRODUCTS

	1995–96		1996–97		1997–98		1998–99	
	Total exports		Total exports		Total exports		Total exports	
	\$m	%	\$m	%	\$m	%	\$m	%
Coal, whether or not pulverised but not agglomerated	7 775	10.2	7 958	10.1	9 562	10.9	9 301	10.8
Petroleum oils and oils obtained from bituminous minerals, crude	1 593	2.1	1 883	2.4	1 972	2.2	1 595	1.9
Petroleum products	1 596	2.1	1 922	2.4	2 008	2.3	1 537	1.8
Gas, natural and manufactured	1 562	2.1	1 895	2.4	1 968	2.2	1 727	2.0
Ores and concentrates of uranium or thorium	242	0.3	245	0.3	288	0.3	287	0.3
<b>Total</b>	<b>12 768</b>	<b>16.8</b>	<b>13 903</b>	<b>17.6</b>	<b>15 798</b>	<b>17.9</b>	<b>14 447</b>	<b>16.8</b>

Source: International Merchandise Trade, Australia (5422.0).

In 1998–99, non-renewable energy products accounted for about 17% of the total value of Australia's exports. Black coal continues to be worth the greatest export value at about 11% of total exports (see table 18.7). Crude oil, petroleum products and natural gas each accounted for about 2%. The ores and concentrates of uranium and thorium contribute about 0.3% of the total. Estimates of exports of renewable energy products and services were compiled for 1995–96. These totalled \$100m, the main exports being photovoltaics and associated equipment (\$57m), followed by solar water heaters (\$21m) and consultancies (\$21m). This represents a little under 0.1% of total exports.

## Energy end use in Australia

Table 18.8 shows the steady upward trend of energy supply, conversion and end use. During the period 1990–90 to 1997–98, energy production increased by about 31%, energy used in the conversion industry by about 24%, and energy consumption by about 21%.

Energy production in Australia for 1997–98 was estimated at 12,171 petajoules. Net exports were also on the rise, up about 26% on 1990–91

figures, accounting for 7,773.2 petajoules in 1997–98. Energy conversion consumed about 33% of Australia's total energy supply in 1997–98, most of which was used for electricity generation (1,272 petajoules). On an international scale, Australia's energy production and conversion represent only about 3% and 1%, respectively, of the world's non-renewable fuel production.

By contrast, energy consumption relative to GDP is high in Australia, and continues to increase. Electricity generation was the largest consumer of total energy supply in 1997–98, followed by the transport sector (road, rail, air and water combined) and manufacturing industries. Combined, these sectors consume over 70% of Australia's total energy supply. Electricity generation has increased by about 28% since 1990–91. The strong growth in this sector reflects rapid growth in a number of end use sectors in which electricity is a prime fuel source, such as the commercial sector. Mining also experienced a large increase in energy end use, with an increase of 58% between 1990–91 and 1997–98. However, mining is a relatively small consumer of electricity, accounting for 5.5% of consumption in 1997–98.

**18.8 FLOW TABLE FOR ENERGY SUPPLY, CONVERSION AND END USE**

	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98p
	petajoules	petajoules	petajoules	petajoules	petajoules	petajoules	petajoules	petajoules
<b>SUPPLY</b>								
Production	9 298.6	9 613.5	8 981.4	9 037.8	9 590.8	10 842.8	11 710.0	12 171.0
Imports	625.2	676.9	860.3	898.2	925.3	1 043.7	1 109.1	1 083.8
Exports	–6 786.1	–6 500.7	–5 583.7	–6 403.5	–6 771.1	–7 459.7	–7 960.2	–8 857.0
Stock change(a)	812.2	193.0	–176.0	649.4	621.1	78.8	–248.2	–412.2
<b>Total supply</b>	<b>3 950.0</b>	<b>3 982.9</b>	<b>4 081.9</b>	<b>4 181.9</b>	<b>4 365.3</b>	<b>4 505.4</b>	<b>4 610.3</b>	<b>4 810.1</b>
<b>CONVERSION</b>								
Coke ovens	36.0	33.3	31.9	24.1	24.5	18.3	31.9	50.0
Briquetting	0.3	2.2	0.0	0.5	0.3	1.7	1.7	1.6
Petroleum refining	13.3	13.6	13.2	13.4	13.2	14.6	15.7	14.3
Gas manufacturing	0.2	0.5	0.4	0.3	0.4	0.4	0.5	0.5
Electricity generation	992.4	1 016.3	1 020.5	1 033.5	1 082.4	1 129.7	1 160.6	1 272.3
Other conversion	60.4	44.6	41.3	47.8	49.4	51.4	50.9	47.3
Own fuel use	180.5	183.4	189.1	193.1	199.9	198.5	193.3	201.1
Total conversion	1 283.1	1 293.9	1 296.4	1 312.7	1 370.1	1 414.6	1 454.6	1 587.1
<b>Net supply(b)</b>	<b>2 666.6</b>	<b>2 689.1</b>	<b>2 785.4</b>	<b>2 869.3</b>	<b>2 996.0</b>	<b>3 091.0</b>	<b>3 155.3</b>	<b>3 223.0</b>
<b>END USE</b>								
Agriculture	57.8	59.1	61.1	62.8	64.8	64.6	67.0	68.8
Mining	167.0	176.5	191.8	196.6	215.8	238.6	248.8	264.6
Iron and steel	96.2	95.9	96.2	103.2	103.1	99.5	98.6	99.5
Chemical	137.2	128.8	132.5	137.2	141.7	149.2	144.3	149.5
Other industry(c)	638.2	626.7	654.0	682.3	697.7	703.2	720.6	740.4
Construction	37.2	39.2	41.6	43.0	44.3	43.8	45.5	46.9
Road transport	796.7	809.8	829.2	853.5	879.5	904.3	921.3	936.0
Rail transport	30.5	29.9	29.3	29.0	28.4	28.7	29.0	29.4
Air transport	122.7	131.3	140.0	145.3	163.0	176.3	183.0	183.6
Water transport	49.0	48.7	45.6	46.8	62.6	64.6	61.6	53.4
Commercial	156.8	160.0	164.4	168.4	179.9	189.7	195.8	205.3
Residential	327.8	334.7	347.6	345.1	359.5	369.4	377.5	384.6
Others(d)	49.3	48.3	52.1	56.0	58.0	59.1	62.4	60.4
<b>Consumption</b>	<b>2 666.6</b>	<b>2 689.1</b>	<b>2 785.4</b>	<b>2 869.3</b>	<b>2 996.0</b>	<b>3 091.0</b>	<b>3 155.3</b>	<b>3 223.0</b>

(a) Includes discrepancies. (b) After conversion, industrial sector use and losses. Equals total final energy consumption.

(c) Manufacturing industries other than iron and steel and chemical. (d) Includes lubricants, greases, bitumen and solvents.

Source: Australian Bureau of Agricultural and Resource Economics, 1999.

End use information relating to electricity and gas consumption is provided in tables 18.9 to 18.12. The total number of electricity customers increased by 2% from 1996–97 to 1997–98, with consumption increasing by about 5% in the 12 month period.

New South Wales (including ACT) and Victoria accounted for about 60% of total electricity customers. New South Wales alone accounted for 37% of total electricity consumption in 1997–98, followed by Victoria and Queensland with 22% and 20%, respectively. Queensland experienced a

12% increase in electricity consumption in 1997–98, partly as a consequence of the rapid expansion of the electricity generation sector in Queensland in this year.

In 1996–97, Victoria was the largest consumer of natural gas, accounting for 46% of natural gas customers and 52% of total gas consumption. New South Wales was the next largest consumer of natural gas (30% of total gas consumption), followed by South Australia with 12%. Consumption figures exclude Western Australia as data were not available for publication.

**18.9 ELECTRICITY, Number of Customers by State/Territory—30 June 1998**

	NSW and ACT	Vic.	Qld	SA	WA	Tas.	NT	Aust.
Residential	2 555 906	1 804 169	1 346 548	630 060	673 571	206 926	51 998	7 272 178
Other(a)	391 107	233 882	185 486	94 471	88 133	38 572	11 128	1 092 779
<b>Total</b>	<b>2 947 013</b>	<b>2 038 051</b>	<b>1 532 034</b>	<b>724 531</b>	<b>761 704</b>	<b>245 498</b>	<b>63 126</b>	<b>8 364 957</b>

(a) Includes commercial, industrial, traction and public lighting.

Source: Electricity Supply Association of Australia, 1999.

**18.10 ELECTRICITY CONSUMPTION by State/Territory—1997–98(a)**

	NSW and ACT	Vic.	Qld	SA	WA	Tas.	NT	Aust.
	million kWh	million kWh	million kWh	million kWh	million kWh	million kWh	million kWh	million kWh
Residential	18 315	10 281	9 369	3 693	3 268	1 887	412	47 225
Other(b)	40 398	24 574	22 841	6 246	7 796	7 098	1 113	110 065
<b>Total</b>	<b>58 713</b>	<b>34 855</b>	<b>32 210</b>	<b>9 939</b>	<b>11 063</b>	<b>8 985</b>	<b>1 525</b>	<b>157 290</b>

(a) Figures do not include internal usage by supply authorities or consumption on unread meters at 30 June. (b) Includes commercial, industrial, traction and public lighting.

Source: Electricity Supply Association of Australia, 1999.

**18.11 NATURAL GAS OPERATIONS OF UTILITIES, Number of Customers by State/Territory—1996–97**

	NSW(a)	Vic.(a)	Qld	SA	WA	Tas.(b)	NT	ACT	Aust.
Residential	687 042	1 349 307	126 859	312 000	372 986	—	211	58 654	2 907 059
Commercial	22 158	38 890	4 393	6 861	6 766	—	69	1 484	80 621
Industrial	2 449	4 267	544	1 238	269	—	6	39	8 812
<b>Total</b>	<b>711 649</b>	<b>1 392 464</b>	<b>131 796</b>	<b>320 099</b>	<b>380 021</b>	<b>—</b>	<b>286</b>	<b>60 177</b>	<b>2 996 492</b>

(a) Sales in Albury, New South Wales were included in Victoria. (b) Natural gas not available in Tasmania.

Source: The Australian Gas Association, 1998.

**18.12 NATURAL GAS OPERATIONS OF UTILITIES, Consumption by State/Territory—1996–97**

	NSW(a)	Vic.(b)	Qld	SA	WA	Tas.(c)	NT	ACT	Aust.(d)
	terajoules	terajoules	terajoules	terajoules	terajoules	terajoules	terajoules	terajoules	terajoules
Residential	14 714	76 616	1 497	7 536	n.p.	—	2	2 744	103 109
Commercial	11 513	21 786	1 310	3 350	n.p.	—	75	2 209	40 243
Industrial	75 324	77 162	8 975	30 591	n.p.	—	14	99	192 165
<b>Total</b>	<b>101 551</b>	<b>175 564</b>	<b>11 782</b>	<b>41 477</b>	<b>n.p.</b>	<b>—</b>	<b>92</b>	<b>5 052</b>	<b>335 517</b>

(a) Excludes the ACT. (b) Includes Albury. (c) Natural gas not available in Tasmania. (d) Excludes Western Australia.

Source: The Australian Gas Association, 1998.

Table 18.13 presents information on the extent to which the residential sector uses various energy sources, and the types of activities for which they are being used. Gas was the most popular energy source for space heating, closely followed by electricity. These two sources were used by over 60% of households as their main source of heating. The number of households using gas as the main source of heating increased by 15% between 1994 and 1999. Wood as a primary fuel source for space heating fell from 17.6% of households in 1994 to 15.7% in 1999.

Electricity was by far the energy source most used for domestic hot water services, with 62.3% of households using electricity in 1994 and 59.6% in 1999. Gas increased as a fuel source for hot water systems during this period, 35.4% of households using gas in 1999 compared with 33.6% in 1994. Solar power was used by about 5% of households in both years. The energy sources used by Australian households for cooking were almost exclusively electricity and gas, almost 60% of households using electricity and just over 40% using gas as the primary energy source in 1999.

**18.13 MAIN SOURCE OF FUEL USED, By Activity**

	Space heating		Hot water		Cooking	
	1994	1999	1994	1999	1994	1999
	'000					
Gas	2 044.3	2 349.6	2 153.8	2 526.7	n.a.	2 887.0
Electricity	1 906.4	1 997.3	3 999.3	4 253.8	n.a.	4 181.1
Wood	1 130.4	1 118.3	n.a.	73.9	n.a.	51.4
Coal/coke	n.a.	*2.7	n.a.	*0.0	n.a.	0.0
Oil	200.0	156.3	n.a.	*2.2	n.a.	*0.9
Solar	3.8	*0.8	317.1	344.7	n.a.	n.a.
Other/varies	90.6	44.5	141.9	12.4	n.a.	14.8
Don't know	n.a.	*7.5	—	36.9	n.a.	n.a.
No heating	1 039.1	1 458.1	n.a.	n.a.	n.a.	n.a.
<b>Total</b>	<b>6 414.5</b>	<b>7 135.2</b>	<b>6 414.5</b>	<b>7 135.2</b>	<b>n.a.</b>	<b>7 135.2</b>
	PER CENT					
Gas	31.9	32.9	33.6	35.4	n.a.	40.5
Electricity	29.7	28.0	62.3	59.6	n.a.	58.6
Wood	17.6	15.7	n.a.	1.0	n.a.	0.7
Coal/coke	3.1	*0.0	n.a.	*0.0	n.a.	0.0
Oil	n.a.	2.2	n.a.	*0.0	n.a.	*0.0
Solar	0.1	*0.0	4.9	4.8	n.a.	n.a.
Other/varies	1.4	*0.6	2.2	0.2	n.a.	0.2
Don't know	n.a.	*0.1	—	0.5	n.a.	n.a.
No heating	16.2	20.4	n.a.	n.a.	n.a.	n.a.

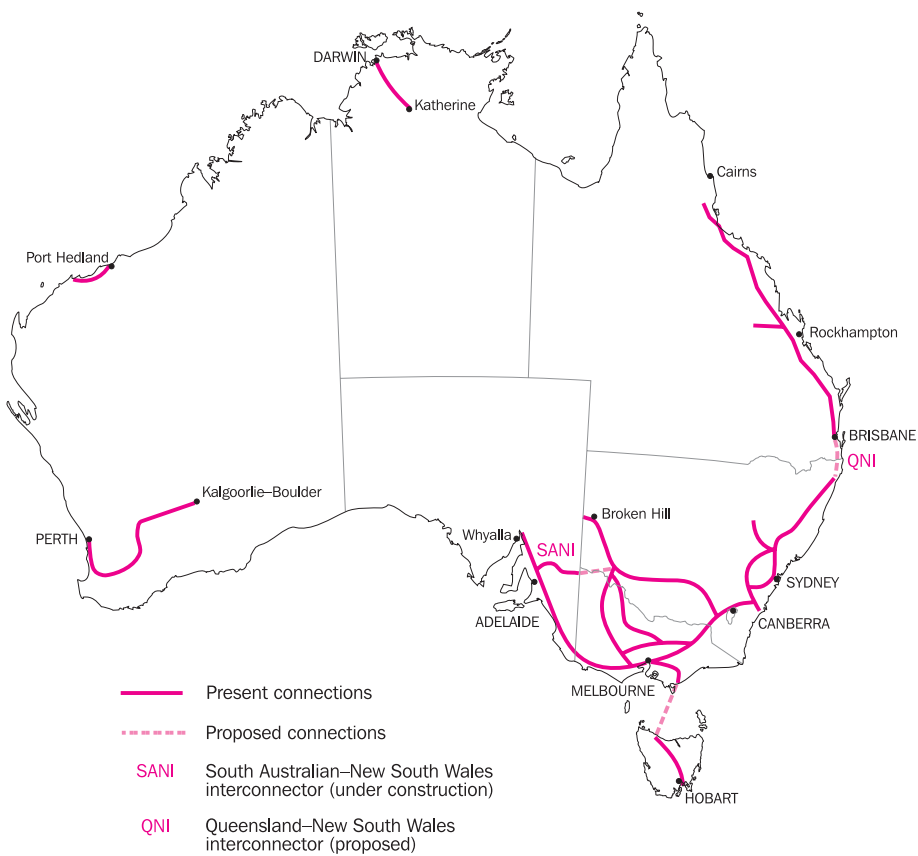
Source: *Environmental Issues: People's Views and Practices (4602.0)*.

## Electricity and gas operations

Both the electricity and gas markets have been undergoing comprehensive programs of reform over the past few years. For industry participants, particularly in the national electricity market, these reforms are mainly about providing competitive challenges and market opportunities. The article at the end of this chapter describes the market reforms underway in these sectors.

Map 18.14 shows present electricity grid connections, as well as proposed links in the establishment of a national electricity market. The Queensland to New South Wales interconnection is under construction and expected to be operational in 2000–2001. Other proposals are for a new link between South Australia and New South Wales, and a Tasmanian link to the mainland. Western Australia and the Northern Territory are not expected to participate in the national electricity market because transmission distances to other States are too long.

18.14 ELECTRICITY GRID DEVELOPMENTS



Source: ABARE 1999.

Table 18.15 presents summary information on the performance, assets and liabilities of the electricity industry since 1994–95. Industry value added totalled \$9,550.3m in 1997–98. Employment in this sector showed a continuing downward trend, decreasing by a further 5% between June 1997 and June 1998. Trading profit margins in the electricity industry have increased steadily since 1994–95, reaching 42.1% in 1997–98.

Table 18.16 shows that electricity generation for Australia increased by just over 5% between 1992–93 and 1996–97, and jumped a further 4.6% between 1996–97 and 1997–98. Most of this increase can be attributed to Victoria, where electricity generation increased by about 5,000 kilowatt hours between 1996–97 and 1997–98. New South Wales contributed about 35% of total electricity generation in 1997–98, but showed a fall in generation for the first time since 1992–93.

**18.15 ELECTRICITY INDUSTRY, Summary Measures of Performance, Assets and Liabilities**

	Unit	1994–95	1995–96	1996–97	1997–98
Industry value added					
Turnover	\$m	21 209.0	21 126.5	21 259.5	21 621.5
Plus closing inventories	\$m	838.5	687.4	562.0	543.3
Less opening inventories	\$m	796.8	768.9	700.8	558.4
Less capitalised purchases	\$m	n.a.	n.a.	533.7	600.0
Intermediate input expenses	\$m	n.a.	n.a.	n.a.	11 656.1
<i>Industry value added</i>	\$m	n.a.	n.a.	n.a.	9 350.3
Income and expenditure					
Sales of goods and services(a)	\$m	20 299.2	20 144.3	20 204.5	20 555.3
Purchases and selected expenses	\$m	12 612.0	12 486.2	12 178.2	12 481.9
Plus opening inventories	\$m	796.8	768.9	700.8	558.4
Less closing inventories	\$m	838.5	687.4	562.0	543.3
Equals cost of sales	\$m	12 570.3	12 567.7	12 317.0	12 497.0
Plus capitalised purchases	\$m	n.a.	n.a.	533.7	600.0
Trading profit (sales less cost of sales plus capitalised purchases)	\$m	n.a.	n.a.	8 412.2	8 658.3
Plus other income	\$m	1 029.6	1 036.9	1 216.6	813.8
Less selected labour costs	\$m	2 443.2	2 510.2	2 397.8	2 302.0
Less depreciation	\$m	2 313.4	2 253.6	2 398.7	2 341.8
Less other expenses	\$m	140.0	132.8	127.0	121.3
Plus capitalised wages and salaries	\$m	n.a.	n.a.	263.8	210.6
Equals earnings before interest and tax	\$m	3 861.9	4 551.7	4 978.1	4 917.6
Less interest expenses	\$m	2 414.9	2 449.5	2 451.1	2 602.0
<i>Operating profit before tax</i>	\$m	1 447.0	2 102.2	2 527.0	2 315.6
Assets and liabilities					
Total value of assets	\$m	65 206.9	65 872.8	68 279.2	74 774.3
Total value of liabilities	\$m	35 041.4	36 325.9	36 520.6	42 361.4
<i>Net worth</i>	\$m	30 165.5	29 546.9	31 758.6	32 412.9
Selected performance measures					
Asset turnover	%	0.3	0.3	0.3	0.3
Trading profit margin	%	38.1	40.3	41.7	42.1
Liquidity ratio	times	0.8	0.9	0.7	1.0
Debt to assets	%	54.4	55.7	53.5	56.7
Industry value added to employment	\$'000/employee	n.a.	n.a.	n.a.	267.7
Other					
Management units at 30 June	no.	71	57	58	70
Employment at 30 June	no.	44 425	39 977	36 682	34 928

(a) Includes rent, leasing and hiring income.

Source: *Electricity, Gas, Water and Sewerage Operations, Australia* (8226.0).**18.16 ELECTRICITY GENERATION(a)**

	NSW(b)	Vic.	Qld	SA(c)	WA	Tas.	Aust.
Financial year	million kWh	million kWh	million kWh	million kWh	million kWh	million kWh	million kWh
1992–93	57 794	37 576	30 404	10 227	15 007	8 864	<b>159 872</b>
1993–94	57 792	37 019	31 831	10 560	15 755	8 855	<b>161 813</b>
1994–95	60 016	36 043	33 517	10 044	16 756	8 688	<b>165 063</b>
1995–96	62 047	36 621	33 618	8 734	17 422	9 100	<b>167 543</b>
1996–97	62 788	35 400	34 779	9 167	16 738	9 543	<b>168 415</b>
1997–98	61 804	40 335	n.p.	n.p.	17 203	9 700	<b>176 211</b>

(a) Statistics relate to generation of electricity within each State and take no account of interchange between States. (b) Includes the ACT. (c) Includes the NT.

Source: *Manufacturing Production, Australia: Energy Products* (8368.0).

There are three distinct gas pipeline networks in Australia, with separate networks in Western Australia and the Northern Territory, and an interconnected network in South Australia, Victoria, New South Wales, the Australian Capital Territory and Queensland. Table 18.17 presents statistics on Australia's natural gas reticulation

and transmission networks. In 1996–97, 2,485 kms of pipeline were laid and a total of 81,664 kms of pipeline in Australia's natural gas reticulation and transmission system were in use. Map 18.18 shows present and proposed major pipelines, as well as the location of Australia's natural gas reserves.

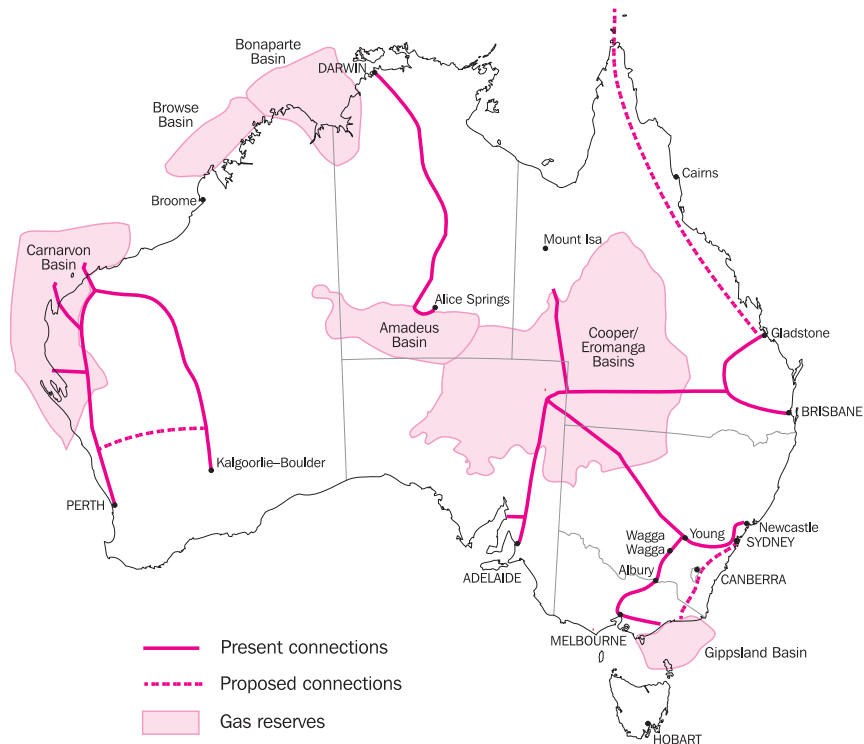
18.17 NATURAL GAS RETICULATION AND TRANSMISSION, Mains Laid and Mains in Use by State/Territory—1996–97

	NSW	Vic.	Qld	SA	WA	Tas.(a)	NT	ACT	Aust.
Reticulation mains	km	km	km	km	km	km	km	km	km
CONSTRUCTION MAINS LAID									
Low and medium pressure	303	8	79	–63	202	—	—	33	562
High pressure	38	514	1	101	–12	—	13	—	655
Transmission—high pressure	—	—	400	0	858	—	10	—	1 268
<b>Total</b>	<b>341</b>	<b>522</b>	<b>479</b>	<b>38</b>	<b>1 048</b>	<b>—</b>	<b>23</b>	<b>33</b>	<b>2 485</b>
TOTAL PIPELINE NETWORK IN USE									
Low and medium pressure	18 856	7 189	3 381	3 308	9 246	—	4	3 042	45 026
High pressure	1 359	17 202	138	3 053	549	—	33	210	22 544
Transmission—high pressure	2 042	1 962	2 103	1 344	4 393	—	2 250	—	14 093
<b>Total</b>	<b>22 257</b>	<b>26 353</b>	<b>5 622</b>	<b>7 705</b>	<b>14 188</b>	<b>—</b>	<b>2 286</b>	<b>3 252</b>	<b>81 664</b>

(a) Natural gas not available in Tasmania.

Source: The Australian Gas Association, 1998.

18.18 MAJOR PIPELINES AND AUSTRALIA'S NATURAL GAS RESERVES



Source: ABARE 1999.

Table 18.19 shows that the industry value added for the gas industry was \$1162.9m in 1997–98. Sales of goods and services increased by 56% in that year. As in the electricity industry, employment has shown a rapid decline since

1994–95, with a particularly large fall from 4,277 persons at end June 1997 to 2,809 persons at end June 1998. The trading profit margin for the industry fell to 26.8% in 1997–98, down from 33.9% in 1996–97.

**18.19 GAS INDUSTRY, Summary Measures of Performance, Assets and Liabilities**

	Unit	1994–95	1995–96	1996–97	1997–98
Industry value added					
Turnover	\$m	2 803.0	2 746.7	2 790.8	4 310.1
Plus closing inventories	\$m	45.8	37.4	31.7	12.3
Less opening inventories	\$m	53.1	45.1	38.1	26.7
Less capitalised purchases	\$m	n.a.	n.a.	54.7	65.9
Intermediate input expenses	\$m	n.a.	n.a.	n.a.	3 066.9
<i>Industry value added</i>	<i>\$m</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>1 162.9</i>
Income and expenditure					
Sales of goods and services(a)	\$m	2 719.9	2 622.1	2 719.4	4 232.2
Purchases and selected expenses	\$m	1 913.6	1 875.5	1 845.8	3 150.3
Plus opening inventories	\$m	53.1	45.1	38.1	26.7
Less closing inventories	\$m	45.8	37.4	31.7	12.3
Equals cost of sales	\$m	1 920.9	1 883.2	1 852.2	3 164.7
Plus capitalised purchases	\$m	n.a.	n.a.	54.7	65.9
Trading profit (sales less cost of sales)	\$m	798.9	836.7	921.9	1 133.4
Plus other income	\$m	22.0	32.7	-184.1	151.3
Less selected labour costs	\$m	324.5	313.4	307.7	170.7
Less depreciation	\$m	117.8	138.1	169.0	217.7
Less other expenses	\$m	8.7	12.5	13.8	13.7
Plus capitalised wages and salaries	\$m	n.a.	n.a.	10.1	7.2
Equals earnings before interest and tax	\$m	370.0	426.2	257.4	889.8
Less interest expenses	\$m	53.4	111.9	218.7	229.9
<i>Operating profit before tax</i>	<i>\$m</i>	<i>316.6</i>	<i>314.3</i>	<i>38.7</i>	<i>659.9</i>
Assets and liabilities					
Total value of assets	\$m	3 015.9	3 934.3	4 460.3	6 114.8
Total value of liabilities	\$m	1 432.8	2 093.2	2 722.3	4 703.0
<i>Net worth</i>	<i>\$m</i>	<i>1 583.1</i>	<i>1 841.1</i>	<i>1 738.0</i>	<i>1 411.8</i>
Selected performance measures					
Asset turnover	%	0.9	0.7	0.6	0.7
Trading profit margin	%	29.4	31.9	33.9	26.8
Liquidity ratio	times	0.8	0.8	1.0	0.8
Debt to assets	%	48.2	53.7	61.5	77.1
Industry value added to employment	\$'000/emp.	n.a.	n.a.	n.a.	414.0
Other					
Management units at 30 June	no.	17	13	11	19
Employment at 30 June	no.	6 738	4 950	4 277	2 809

(a) Includes rent, leasing and hiring income.

Source: Electricity, Gas, Water and Sewerage Operations, Australia (8226.0).



## Energy initiatives

The energy sector has undergone rapid changes in recent years. In Australia, reforms in the electricity and gas markets are proceeding at both the Commonwealth and State and Territory levels. The reforms reflect the proposals advocated by the former Industry Commission. The article at the end of this chapter describes these market reforms.

The other major challenge facing the energy sector results from the growing interest in national and international policy responses to the prospect of global climate change. The largest single source of Australia's greenhouse gas emissions is the production and consumption of energy. Although Australia's total CO<sub>2</sub> emissions from energy use was about 1.3% of the world total, OECD estimates for 1995 show Australia to have one of the highest rates of CO<sub>2</sub> emissions from energy use per capita (15.8 tonnes/capita). Only Canada, the United States of America and Luxembourg experienced higher levels.

On 20 November 1997, the Prime Minister announced a package of measures designed to address climate change, including measures aimed at reducing the impact of the energy sector on the environment—*Safeguarding Our Future: Australia's Response to Climate Change*. On 26 November 1998, the National Greenhouse Strategy was launched to provide the framework for Australia's domestic response to greenhouse commitments. On the supply side, these include standards to improve the efficiency of fossil fuel conversion, and actions to encourage the development of renewable energy. On the demand side, initiatives include an industry program on energy efficiency and best practice, along with energy performance codes for housing and commercial buildings.

## Renewable energy

Perhaps the most important initiative currently under consideration is the 2% renewable energy target. The renewable energy initiative involves setting a mandatory target for electricity retailers and large electricity purchasers to source an additional 2% of their electricity from renewable or specified waste product energy sources by

2010. In 1996–97 it was estimated that the share of renewable energy in national electricity production was about 10%, ranging from less than 1% in the Northern Territory to over 99% in Tasmania.

For consumers, Green power schemes represent the first convenient means by which they can exercise choice over the source of their electricity and support renewable energy. Green power schemes offer electricity customers the opportunity to support grid-connected renewable energy systems. Renewable power sources include solar, wind and hydro power, as well as energy from landfill gas. Table 18.20 presents information on the extent to which Australian households are connected to Green power schemes. A total of 228,000 households reported being connected to a Green power scheme in March 1999. This represented just over 3% of Australian households. Some 72% of Green power connected households were from Tasmania, where almost 90% of electricity is sourced from hydro power. All other States had connection rates of 1.5% or lower. This relatively low uptake is likely to be significantly affected by a low level of awareness by consumers. Almost 80% of households not connected to Green power reported that they were not aware of the scheme.

Despite low consumer awareness, Australian Green power schemes are proliferating and Australia is increasingly cited as an international leader in this field. Since the NSW Sustainable Energy Development Authority (SEDA) established its Green power accreditation in April 1997, at least ten electricity retailers have launched Green power products. Existing grid-connected sources available to Green power retailers in 1996 totalled 91MW, of which 79MW was hydro. New sources from 1997 to September 1998 amounted to 25MW, with no new hydro installations. Non-hydro sources have thus seen substantial growth. The scheme has led to new renewable energy installations (for example, a 50kW solar photovoltaic system at the Western Plains Zoo in Dubbo) and proposals for new renewable energy projects which represent a significant growth in total capacity, albeit from a very small base.

**18.20 HOUSEHOLD CONNECTION TO GREEN POWER SCHEMES, By State and Territory—March 1999**

	NSW	Vic.	Qld	SA	WA	Tas.	NT(a)	ACT	Aust.
	'000								
Connected	24.9	*6.9	19.0	*1.8	10.4	164.1	*0.2	*0.8	<b>228.1</b>
Not connected	2 116.9	1 591.8	1 191.8	563.4	664.6	12.8	46.9	111.1	<b>6 299.2</b>
Don't know	243.6	141.9	121.1	40.3	40.2	9.6	*5.1	*6.1	<b>607.8</b>
Total	2 385.4	1 740.6	1 331.9	605.5	715.2	186.4	52.2	118.0	<b>7 135.2</b>
	PER CENT								
Connected	1.0	*0.4	1.4	*0.3	1.5	88.0	*0.4	*0.7	<b>3.2</b>
Not connected	88.7	91.4	89.5	93.1	92.9	6.8	89.9	94.2	<b>88.3</b>
Don't know	10.2	8.2	9.1	6.7	5.6	5.1	*9.7	*5.1	<b>8.5</b>

(a) Refers to mainly urban areas only.

Source: *Environmental Issues: People's Views and Practices (4602.0)*.

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Prime Minister of Australia 1997, *Safeguarding the Future: Australia's Response to Climate Change*.

Productivity Commission 1999, *Impact of Competition Policy Reforms on Rural and Regional Australia*, Draft report, Canberra, May.

The Australian Gas Association, *Gas Statistics Australia, 1998*, Canberra.

### Other sources

The following organisations also produce energy statistics:

Australian Institute of Petroleum;

Electricity Supply Association of Australia;

Department of Industry, Science and Resources; and

Joint Coal Board.

State government departments and instrumentalities are also important sources of energy data, particularly at the regional level. A number of private corporations and other entities operating within the energy field also publish or make available a significant amount of information.

### Internet sites

Australian Cooperative Research Centre (CRC) for Renewable Energy,  
<http://www.wistp.murdoch.edu.au/renewable/greenpw>

Commonwealth Department of Industry, Science and Resources, <http://www.isr.gov.au>

Energy Australia, <http://www.energy.com.au>

Organisation for Economic Co-operation and Development, <http://www.oecd.org>

# Reforms in the Australian electricity and gas industries

*(This article reproduces material from the Productivity Commission draft report 'Impact of Competition Policy Reforms on Rural and Regional Australia', Canberra, May 1999.)*

## Electricity industry

### Background

In Australia, electricity accounts for about 18% of final energy consumption, and some 66% of the commercial and 42% of the residential segments of the energy market. The manufacturing sector is the largest user, particularly for non-ferrous metal manufacture and pulp and paper production, both of which are located mainly in regional areas.

Until the late 1980s, the electricity supply industry comprised publicly owned, vertically integrated monopoly suppliers which operated in separate, extensively regulated State markets. This structure resulted in significant overmanning and overinvestment, inflated electricity costs and prices, and tariffs which did not reflect the cost of supplying different classes of users.

In July 1991, the relevant State Governments agreed to establish a National Grid Management Council (NGMC) to encourage and coordinate the most efficient, economic and environmentally sound development of the electricity industry in eastern and southern Australia. Their aim was to deliver cheaper electricity and a more rational use of the nation's resources, and to better position Australia in the international market for electricity supply.

The Council of Australian Governments (CoAG) announced, in June 1993, a firm commitment to have the necessary structural changes in place to allow the implementation of a competitive electricity market from 1 July 1995. These reforms involved industry restructuring, in particular the separation of generation, transmission and distribution, and the formation of a National Electricity Market (NEM) in the southern and eastern States. In April 1995 these reforms were reaffirmed and extended under the National Competition Policy (NCP).

### Progress of the reforms

Since the 1991 CoAG agreement there has been unprecedented structural change in this sector, including:

- in New South Wales, the creation of three competing generation entities, an independent transmission business and the consolidation of distributors into six new distribution utilities;
- in Victoria, the separation and sale of all major power stations, all five distribution businesses and the transmission utility;
- in Queensland, the splitting of the major generator into three independent government businesses, the formation of a separate corporation to operate the State's transmission infrastructure, the retention of seven distribution corporations and the creation of three new retail businesses. However, the Queensland Government recently announced its decision to reamalgamate the distribution boards under a single Commission;
- in South Australia, the creation of separate entities responsible for generation, transmission and distribution functions;
- in Western Australia, the separation of electricity supply from water supply and its establishment as a corporatised business, and the sale of one of the State's power stations;
- in Tasmania, the separation of the State's vertically integrated electricity supplier into three entities responsible for generation and system control, transmission and retail/distribution;
- in the Australian Capital Territory, the structural separation ('ring fencing') of the Territory's electricity distribution and retail activities within the Government-owned water and electricity corporation; and

- in the Northern Territory, “a reduction in commercial electricity tariffs and a broadening of tariff options; improvements in operational efficiency; the removal of regulatory and policy functions from the Power and Water Authority; the development of Territory-based arrangements to progressively open the electricity generation and retail markets to competition; greater private sector involvement in service provision; and consideration of an economic regulatory regime for the electricity, water and sewerage industries”. (NT Treasury, Budget Papers 1999–2000, Budget Paper No. 3, Chapter 9.)

Reforms to corporatise or commercialise all government utilities have placed publicly owned electricity suppliers on a more competitively neutral footing with their private sector counterparts. This has also resulted in pricing reforms to better reflect the underlying costs. Significant savings have resulted for business users as electricity providers have sought to recover a higher proportion of system costs from residential users. However, all jurisdictions have established arrangements to ensure that the pace of price restructuring is manageable.

The NEM became fully operational in December 1998, and encompasses 60 entities in New South Wales, Victoria, South Australia and the Australian Capital Territory. Queensland and Tasmania are expected to participate when the grid connections are completed. The NEM provides for:

- a common wholesale market serving interconnected jurisdictions;
- a single controller despatching generators in the interconnected jurisdictions;
- customer entitlements to purchase electricity either from the spot market or under contract with a supplier of their choice; and
- a market settlement function which handles spot and forward trading in the market and the contractual requirements of wholesale customers and generators.

While many submissions to the Productivity Commission Inquiry acknowledged the improvements in efficiency and cost savings, particularly for larger business users, several issues of concern were also raised, including:

- the fact that, in some regions, the provision of current services and/or investments to upgrade facilities would not be viable under purely commercial pricing regimes and may require government intervention as a Community Service Obligation (CSO);
- the loss of direct employment opportunities in country areas, and increases in connection charges, subsuming any gains from lower usage tariffs;
- current network pricing regimes not recognising the proximity of users to generators, leading to inappropriate investment decisions and impeding regional development;
- the absence of arrangements which would permit small users to aggregate their requirements to achieve the size needed to be eligible to negotiate now, rather than later, in the contestable market segment of the NEM;
- excessive regulation eating into the efficiency gains from the reforms;
- implementation of the reforms being too rapid in some regional areas; and
- possible elimination of single phase electricity in some rural areas as a result of regulatory dictate.

### Impacts of the reforms

The electricity reforms have already delivered significant benefits to Australia as a whole, including cost efficiencies which have allowed for reductions in usage charges. Many users in country Australia, particularly large business users, have benefited from large price reductions, although smaller users in some areas have experienced price increases. Reductions in overmanning of the supply sector have had a similarly large impact on both metropolitan and regional areas, while the rationalisation of maintenance depots has caused some regional centres to gain additional jobs at the expense of those in small towns.

Between 1991–92 and 1996–97, average real prices to all customers fell significantly in New South Wales, Queensland, Western Australia and South Australia. In Tasmania and the ACT, prices initially rose, then fell to levels below those in 1991–92. Business price reductions exceeded residential reductions by 24 percentage points in South Australia, 13 percentage points in New South Wales, 12 percentage points in Queensland and 6 percentage points in the ACT. However, in Western Australia and Tasmania,

residential prices fell almost 8 percentage points more than business prices, while in the Northern Territory, price reductions for the two groups were similar. In Queensland, wholesale prices were reported to have fallen by about 23% since its internal competitive electricity market commenced.

Declining operating costs in public utilities underlie most of these price reductions. The NCP requirement for independent price regulation has helped to ensure that cost reductions have been passed on to users. Price regulation has also facilitated a realignment of prices across user groups, leading to larger price falls for commercial users in most jurisdictions.

The NEM has intensified price competition, with progressively more business users being able to choose their electricity supplier. Recent studies (Deloitte Touche Tohmatsu 1998; ACM 1998) indicated that electricity bills, for New South Wales and Victorian businesses which have been able to select their own supplier, have fallen by 25–30% on average. However, in some regional areas, tariffs have increased and in others the savings in usage charges have been offset by higher connection charges, in particular where a full cost recovery policy on asset works for new connections has been adopted. In some cases, this could result in prohibitive upfront costs for new industries, and so could have a significant impact on economic development.

Access to the NEM appears to have been a major contributor to the price benefits already received by mining companies, larger local governments and agriculture-based firms located in regional Australia.

Service quality has become an important source of competitive advantage for electricity suppliers. Two measures of service quality commonly used are the 'average loss of supply per customer' and the 'average outage duration'. Anecdotal evidence, in regard to these measures, suggests that in some regional areas, price benefits from the electricity reforms have been at the expense of lower service quality.

As a result of State Governments addressing the overstaffing of their electricity utilities, employment in the electricity supply industry fell from over 80,000 in 1985 to about 37,000 in 1997. Increased competition, providing incentives for outsourcing of non-core activities, the centralisation of services and the implementation of new technologies, has seen this trend

continue. Proportionally, the loss of labour in regional areas is little different to that in urban areas, while in absolute terms, employment losses in urban areas have been higher than in regional areas. Moreover, while the reforms have resulted in the closure of service outlets in some small communities, employment in larger centres which have become 'regional headquarters' has increased. As electricity consumption has increased over this period, labour productivity has improved substantially and has created scope for reductions in costs and prices in regional and urban areas alike.

## Summary

The primary benefit of the electricity reforms, for Australia as a whole, has been the significant reductions in average usage charges, most of which to date have accrued to the business sector rather than to domestic users. Over time, small businesses and the residential sector are expected to benefit both directly, as the contestable market area expands, and indirectly, as cost reductions are passed on to consumers.

## Gas industry

### Background

Natural gas accounts for 18% of Australia's primary energy consumption and is expected to account for around 28% by 2010. It is an important business input and alternative energy source to oil and coal. Major industrial users include the metals, chemicals, glass, brick, cement and electricity generation industries. In addition it is used by almost three million households, primarily in Victoria and New South Wales.

Until recently, the industry was largely State-based, State-regulated and primarily composed of vertically integrated State-owned utilities. In addition, legislation in some States restricted the flow of natural gas both within and between States. These restrictions were generally intended to avoid the risk of future gas shortages, or to ensure that gas was available to underpin industrial development within a State.

Competition in the gas industry was limited because of the dominance of a few producers, the existence of monopoly suppliers, the absence of interconnections between systems and a lack of third party access to gas pipelines. This resulted in costs and prices being well above efficient levels and a lack of investment incentives.

Initiatives such as the attempted privatisation of the Moomba–Sydney pipeline and the removal of the State Energy Commission of Western Australia's monopoly over gas supply, marked the beginnings of the reform process in the late 1980s.

In 1991, a Commonwealth Government strategy paper (DPIE 1991) focused on the development of free and fair trade and an integrated national pipeline grid, as well as the introduction of access to pipelines on commercially non-discriminatory terms.

Subsequent CoAG agreements established the following reforms, which were then included in the 1995 National Competition Policy (NCP):

- removal of all legislative and regulatory constraints to free and fair trade in gas;
- introduction of a uniform framework for access to gas transmission pipelines;
- corporatisation of the remaining government owned utilities;
- structural separation ('ring fencing') of publicly and privately owned, vertically integrated transmission and distribution activities; and
- reform of gas franchise arrangements.

### **Progress of the reforms**

Since 1995, gas reforms have progressed in three key areas:

- the development of a national access regime—the National Access Code prepared by the Gas Reform Task Force, has been passed in legislation in all jurisdictions, and all jurisdictions have submitted applications to the National Competition Council for certification of their access regimes;
- the removal of legislative and regulatory barriers to competition—while the original July 1996 deadline for their complete removal was not met, the States and Territories have made significant progress toward removing their legislative and regulatory barriers to free and fair trade. For example, the Western Australian Government is seeking expressions of interest for a second pipeline to be constructed along the western seaboard without any legislative or regulatory barriers, and the South Australian Government has identified a number of instances where the costs of restrictions on competition for the supply of Cooper Basin reserves exceed the benefits; and

- the structural reform of gas facilities and utilities—for instance the Moomba–Adelaide pipeline, the State Gas Pipeline in Queensland and the Dampier–Bunbury transmission pipeline have been privatised, while all government owned gas utilities have been corporatised, sold or prepared for privatisation. Private sector gas utilities in jurisdictions other than South Australia and the Northern Territory have completed 'ring fencing' of their transmission and distribution activities.

There is a fairly widespread perception that gas reforms will generate benefits that significantly outweigh any associated costs, including in regional Australia. However, there are some concerns that the benefits could be reduced by:

- regulatory uncertainty and discretion in the application of the National Gas Access Code, which may add to compliance costs;
- setting the cap on the real rate of return at 7.75% for Victorian gas distributors, which may provide an insufficient incentive to improve service quality or increase investment in gas networks; and
- excessive delays in the pipeline approval procedures at the State level.

### **Impacts of the reforms**

The reforms are providing significant benefits to many parts of Australia. In urban areas, there have been price reductions, particularly for businesses, and improvements in service quality. In regional areas, the primary benefit has been the stimulus provided to the extension of the gas network and the associated business opportunities.

Well over 100 main cities and towns across Australia have been connected to natural gas since 1990. Those areas which have recently gained or should gain access in future to natural gas include:

- the Murray Valley area between Chiltern in Victoria and Deniliquin in New South Wales;
- Mildura and surrounding areas;
- the Bellarine Peninsula to the south of Melbourne;
- Yandina, Nambour, Gympie and Noosa in Queensland; and
- Kalgoorlie/Boulder, Mandurah, Busselton and the northern goldfields (Leonora) in Western Australia.



Improved access to natural gas in country Australia has created opportunities for new activities such as electricity co-generation, and has enabled existing businesses and some households to substitute gas for other energy sources such as electricity and diesel fuels. For example, process heating and, in remote areas, electricity generation are inherently less economic than gas.

In its submission to the Productivity Commission, The Australian Gas Association (AGA) stated that “natural gas allows enterprises in regional Australia to compete more effectively with businesses located in major urban areas, encouraging the decentralisation of production and distribution”, and that the new pipeline proposals, totalling 11,000 kms, which are currently under consideration will “have strong positive regional effects. The pipeline projects identified by the AGA entail investment of around \$6b over the next several years”.

In aggregate terms, real usage charges have fallen, particularly for business users, who have benefited from the rebalancing of charges between businesses and households, and improvements in service delivery. Households have benefited where cost savings from efficiency gains have outweighed the price-raising effects of the rebalancing of charges. For example, NUS International (NUS 1999) reported that gas prices for industrial and residential users fell by an average of 22% Australia-wide between 1994 and 1998. In Western Australia, usage charges for residential users fell by 9% in real terms between 1991–92 and 1996–97, while charges for business users (excluding contracts negotiated by major industrial users) fell by more than 10% over the same period.

In country regions previously connected to the gas network, price reductions have also been evident for industrial and commercial users. For example, in the Pilbara region, usage charges for most large industrial users have fallen, since 1995, by more than 50%. In Queensland, as a result of the sale of the State Gas Pipeline, which runs from Wallumbilla to Gladstone, Queensland Alumina Limited (QAL) reported that “its gas transportation tariff immediately reduced by around 25% and the tariff pricing principles provide for further incentive pricing as pipeline throughput increases”. (Industry Commission

study—IC 1998.) It is expected that State Government approval of access arrangements and licenses to build pipelines linking the south west Queensland gas fields with existing markets in south east and central Queensland will further reduce prices.

The combined impact of better access and lower prices, on the competitiveness of user industries and the investment climate, can be seen, for example, in the Pilbara and Goldfields regions in Western Australia. In these regions, price falls of more than 50% have encouraged large investments, particularly in the construction of the Pilbara–Goldfields gas pipeline and associated infrastructure, and have enabled reticulation of gas in Kalgoorlie. Access to cheaper energy for mineral production has also cut production costs and provided stimulus to new investment, from the iron ore regions in the north west to the nickel and gold belt to the north of Kalgoorlie. In the Riverina area of New South Wales, access to natural gas in 1993 has increased employment and activity in existing industries, and assisted the establishment of new industries, with many relocating to take advantage of the cheaper energy.

Aggregate reductions in gas prices in the 1990s have been underpinned by strong productivity gains, which have been brought about particularly by the open access arrangements for pipelines and the introduction of competition into some gas markets. The number of customers per employee has more than doubled between 1992 and 1997, and real ‘controllable’ costs have declined by more than 40%. It is expected that competition pressures, and hence the likelihood of lower prices and/or better services, will increase when all gas markets become fully contestable in July 2002.

The importance of service quality was highlighted by the recent failure of the Longford gas plant. There is some evidence of service quality improvements in Victoria, where, for example, the proportion of calls for assistance answered within 20 seconds increased from 64% to 84% between 1991–92 and 1996–97. Similarly, in Western Australia, the responsiveness rate of AlintaGas also rose over the same period, while the number of unplanned interruptions to gas supply has fallen since 1994–95.



Loss of employment in the gas industry has been the major adverse effect of the reforms. Between 1992 and 1997, six major gas distributors reduced their workforce by more than 40%. However, most of the losses are likely to have been in metropolitan areas, and these would have been offset by:

- increased employment by firms providing services to gas suppliers as a result of contracting out by suppliers;
- increased employment resulting from the expansion of the gas network to country areas; and
- higher employment in user industries, which have become more competitive as a result of the falls in gas prices.

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## Summary

While significant price reductions have been apparent in the gas sector, the major benefit for regional Australia has been the acceleration in the extension of the pipeline network into rural Australia and across State borders.

According to the AGA, in some parts of Australia the reforms will facilitate the evolution of specialist energy retailers, who will compete vigorously for market share to the continued benefit of users. Improved access to gas services and lower prices could also give rise to environmental benefits, particularly in electricity generation, where gas could be substituted for fossil fuels in large scale generation plants, and from the increased use of gas-fired cogeneration plants.

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## Introduction

**M**anufacturing broadly relates to the physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machinery or by hand.

The manufacturing industry is an important sector of the Australian economy, contributing about 12% of Australia's gross domestic product (GDP) and about 12% of employment. However, despite significant increases in the value of the manufacturing industry's gross value added (by almost 15% over the past ten years), the industry's share of Australian GDP has fallen over the past 20 years from around 18% to its current level of 12%.

Similarly, employment in the manufacturing industry has fallen from around 1.1 million persons 20 years ago to 965,000 persons at June 1998.

This chapter presents a range of data about the manufacturing sector as a whole, and about broad categories of manufacturing industry. These categories are referred to as 'subdivisions'.

Some data are provided from the annual manufacturing survey, for which the latest results relate to 1996–97, while others are derived from various monthly and quarterly surveys, for which the latest results relate to 1997–98.

## Manufacturing trends

Table 19.1 shows that the total volume of production by manufacturing industries (their gross value added) has increased steadily from 1991–92 to 1997–98. Manufacturing production has increased by 13% over the past five years, 15% over the past 10 years and 35% over the past 15 years.

Over the period 1991–92 to 1997–98, production rose in seven of the nine manufacturing subdivisions, with the largest growth being recorded in Printing, publishing and recorded media (up 33%), Machinery and equipment manufacturing (up 24%), Petroleum, coal, chemical and associated product manufacturing (up 23%) and Other Manufacturing (up 27%). Production levels declined over the same period in only two subdivisions, namely Textile, clothing footwear and leather manufacturing (down 13%) and Non-metallic mineral product manufacturing (down 8%).

**19.1 MANUFACTURING GROSS VALUE ADDED, Chain Volume Measures(a) by Industry Subdivision**

	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Industry subdivision	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	11 168	11 323	11 622	11 751	11 820	12 169	12 851
Textile, clothing, footwear and leather manufacturing	3 457	3 312	3 373	3 294	3 200	3 191	2 994
Wood and paper product manufacturing	2 743	2 901	2 988	3 092	3 128	3 206	3 318
Printing, publishing and recorded media	6 359	6 767	6 917	7 301	7 391	7 730	8 477
Petroleum, coal, chemical and associated product manufacturing	6 025	6 166	6 517	6 727	6 955	7 122	7 420
Non-metallic mineral product manufacturing	3 620	3 909	3 994	3 969	3 431	3 467	3 319
Metal product manufacturing	9 371	9 589	9 942	9 893	10 186	10 501	9 898
Machinery and equipment manufacturing	12 155	12 232	13 312	14 109	14 586	15 188	15 063
Other manufacturing	1 994	2 031	2 157	2 170	2 161	2 331	2 538
<b>Total manufacturing(b)</b>	<b>56 960</b>	<b>58 339</b>	<b>60 882</b>	<b>62 263</b>	<b>62 919</b>	<b>64 905</b>	<b>65 878</b>

(a) Reference year for chain volume measures is 1996–97. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: Australian National Accounts: National Income, Expenditure and Product (5206.0).

## Structure of the manufacturing industry

At 30 June 1998, manufacturing establishments in Australia employed 965,000 persons. During 1997–98 those establishments paid \$34,135m in wages and salaries and generated \$214,355m in turnover (see table 19.2).

The manufacturing subdivisions with the most persons employed at 30 June 1998 were Machinery and equipment manufacturing (208,500), Food, beverage and tobacco manufacturing (170,400) and Metal product manufacturing (149,800). Non-metallic mineral product manufacturing (36,500) was the smallest employer, accounting for only 3.8% of manufacturing employment. Further information on manufacturing employment is contained in tables 19.4 and 19.5.

Food, beverage and tobacco manufacturing was the largest contributor to total manufacturing turnover. Its turnover of \$47,142m was 22% of the total for manufacturing. Other subdivisions making major contributions were Machinery and equipment manufacturing (19%), Metal product manufacturing (18%) and Petroleum, coal, chemical and associated product manufacturing (16%).

## Turnover

Turnover is a key measure of the performance of establishments in an industry. It covers the sales of goods and services by an establishment (together with transfers of goods to other parts of the same business) and also includes all other operating revenue generated by the establishment.

In 1997–98 Victoria (with 33% of national manufacturing turnover) and New South Wales (with 32%) continued to be the largest manufacturing States (table 19.3). New South Wales contributed 45% of the national turnover of the Printing, publishing and recorded media industry, and between 25% and 37% of the national turnover of the remaining manufacturing industries. Victoria contributed 50% of the national turnover of the Textile, clothing, footwear and leather manufacturing industry, 42% of the national turnover of the Machinery and equipment manufacturing industry and between 22% and 35% of the national turnover of the remaining manufacturing industries.

Although Queensland accounted for only 15% of national manufacturing turnover overall, it contributed 22% of national turnover for Non-metallic mineral product manufacturing and 20% for Food, beverages and tobacco manufacturing. South Australia, which accounted for 9% of national manufacturing turnover overall, contributed 17% of national turnover for Machinery and equipment manufacturing.

### 19.2 MANUFACTURING, Summary of Operations by Industry(a)—1997–98

Industry subdivision	Employment at 30 June(a)	Wages and salaries(b)	Turnover	Turnover per person employed
	'000	\$m	\$m	\$'000
Food, beverage and tobacco manufacturing	170.4	5 959	47 142	277
Textile, clothing, footwear and leather manufacturing	80.2	2 074	10 545	131
Wood and paper product manufacturing	63.6	2 093	11 602	182
Printing, publishing and recorded media	102.1	3 543	15 038	147
Petroleum, coal, chemical and associated product manufacturing	94.2	3 935	33 563	356
Non-metallic mineral product manufacturing	36.5	1 400	8 982	246
Metal product manufacturing	149.8	5 793	39 048	261
Machinery and equipment manufacturing	208.5	7 864	41 711	200
Other manufacturing	59.7	1 473	6 725	113
<b>Total manufacturing</b>	<b>965.0</b>	<b>34 135</b>	<b>214 355</b>	<b>222</b>

(a) Includes working proprietors. (b) Excludes the drawings of working proprietors.

Source: *Manufacturing Industry, Australia. Preliminary* (8201.0).

**19.3 MANUFACTURING INDUSTRY TURNOVER, By State/Territory—1997–98**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Industry subdivision	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	14 205	14 271	9 550	4 287	3 193	1 424	93	119	47 142
Textile, clothing, footwear and leather manufacturing	3 357	5 303	623	757	298	189	6	12	10 545
Wood and paper product manufacturing	3 515	3 255	1 830	1 015	721	1 193	30	42	11 602
Printing, publishing and recorded media	6 736	4 710	1 522	779	878	183	37	193	15 038
Petroleum, coal, chemical and associated product manufacturing	12 074	11 493	4 943	1 570	3 259	192	29	3	33 563
Non-metallic mineral product manufacturing	2 829	2 199	1 945	611	1 040	223	91	42	8 982
Metal product manufacturing	14 141	8 770	6 579	2 612	5 203	1 081	629	33	39 048
Machinery and equipment manufacturing	10 502	17 554	3 565	7 232	2 226	453	75	104	41 711
Other manufacturing	1 930	2 276	1 093	610	688	65	17	45	6 725
<b>Total manufacturing</b>	<b>69 289</b>	<b>69 832</b>	<b>31 651</b>	<b>19 474</b>	<b>17 506</b>	<b>5 003</b>	<b>1 006</b>	<b>594</b>	<b>214 355</b>

Source: *Manufacturing Industry, Australia, Preliminary (8201.0)*.

**Employment**

Victoria (33%) and New South Wales (32%) dominate manufacturing employment in Australia, accounting for almost two-thirds of national manufacturing employment at 30 June 1998. In all industries, either New South Wales or Victoria is the largest employing State.

New South Wales manufacturing establishments employ 41% of the national total for the Printing, publishing and recorded media, and 35% for the Metal product manufacturing industry. Victoria accounts for some 50% of all persons working in the Textile, clothing, footwear and leather manufacturing industry in Australia.

Queensland establishments employ 21% of persons in Food, beverage and tobacco manufacturing and 22% of those in Non-metallic mineral product manufacturing. South Australia accounts for 14% of employment in the Machinery and equipment manufacturing industry.

For further information on employed wage and salary earners and the characteristics of the manufacturing labour force, refer to *Chapter 6, Labour*.

**19.4 MANUFACTURING INDUSTRY EMPLOYMENT(a), By State/Territory—June 1998**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Industry subdivision	'000	'000	'000	'000	'000	'000	'000	'000	'000
Food, beverage and tobacco manufacturing	50.0	48.1	35.8	16.0	13.8	5.7	0.5	0.4	170.4
Textile, clothing, footwear and leather manufacturing	23.9	40.5	6.7	4.4	3.1	1.4	0.1	0.2	80.2
Wood and paper product manufacturing	19.3	18.3	11.5	5.4	4.8	3.8	0.2	0.3	63.6
Printing, publishing and recorded media	42.1	31.1	12.9	5.8	6.9	1.6	0.4	1.5	102.1
Petroleum, coal, chemical and associated product manufacturing	32.4	36.8	10.5	7.0	6.5	0.8	0.1	0.0	94.2
Non-metallic mineral product manufacturing	11.0	9.1	7.9	2.7	4.8	0.6	0.3	0.1	36.5
Metal product manufacturing	52.6	39.8	24.5	11.4	16.2	3.5	1.4	0.3	149.8
Machinery and equipment manufacturing	61.8	74.8	25.5	28.3	13.9	2.7	0.7	0.7	208.5
Other manufacturing	15.9	19.6	10.5	5.7	6.5	0.9	0.2	0.4	59.7
<b>Total manufacturing</b>	<b>309.1</b>	<b>318.2</b>	<b>145.7</b>	<b>86.8</b>	<b>76.5</b>	<b>21.1</b>	<b>3.8</b>	<b>3.9</b>	<b>965.0</b>

(a) Includes working proprietors.

Source: *Manufacturing Industry, Australia, Preliminary (8201.0)*.

**19.5 CONCENTRATION OF EMPLOYMENT, Manufacturing Establishments—June 1997**

Industry subdivision	Enterprise groups ranked by turnover							
	4 largest		5th to 8th largest		9th to 12th largest		Remainder	
	'000	%	'000	%	'000	%	'000	%
Food, beverage and tobacco manufacturing	20.0	12	9.4	6	9.4	6	125.2	76
Textile, clothing, footwear and leather manufacturing	6.4	8	2.9	4	1.7	2	65.9	86
Wood and paper product manufacturing	13.0	21	5.2	8	2.0	3	41.2	67
Printing, publishing and recorded media	17.9	19	7.7	8	4.7	5	66.5	69
Petroleum, coal, chemical and associated product manufacturing	7.3	8	6.6	7	3.9	4	75.6	81
Non-metallic mineral product manufacturing	12.6	34	3.3	9	1.5	4	19.6	53
Metal product manufacturing	26.1	17	6.3	4	3.4	2	114.5	76
Machinery and equipment manufacturing	15.6	8	16.5	8	5.8	3	169.5	82
Other manufacturing	2.3	4	1.3	2	0.4	1	53.9	93
<b>Total manufacturing</b>	<b>45.0</b>	<b>5</b>	<b>20.2</b>	<b>2</b>	<b>21.1</b>	<b>2</b>	<b>859.5</b>	<b>91</b>

Source: Unpublished data, Manufacturing Industry.

### Concentration of employment within the manufacturing industry

Concentration statistics provide information on the extent to which particular groups of related enterprises (enterprise groups) contribute to economic activity in individual industries. The percentages are an indicator of the degree of competition existing between enterprise groups engaged in an industry. Enterprise groups are ranked in size (in terms of turnover contributed to the relevant industry) from largest to smallest. The largest 12 enterprise groups are then formed into three groupings of four, and employment data are compiled for these groupings and for the remaining enterprise groups.

As table 19.5 shows, the four largest enterprise groups (in terms of turnover) in the manufacturing industry employed around 45,000 people at the end of June 1997. This accounted for 5% of all people employed in the manufacturing industry. The most concentrated subdivisions (i.e. those where the four largest enterprise groups have the greatest share of employment) were Non-metallic mineral product manufacturing (34%), Wood and paper product manufacturing (21%) and Printing, publishing and recorded media (19%). Subdivisions with the lowest levels of concentration were Textile, clothing, footwear and leather manufacturing (8%), Petroleum, coal, chemical and associated product manufacturing (8%), Machinery and equipment manufacturing (8%) and Other manufacturing (4%).

### Industrial disputes

There were 125 industrial disputes in the manufacturing industry in calendar 1998. These disputes involved just over 41,000 employees and resulted in the loss of over 95,000 working days (table 19.6). Compared with 1997, this represented a substantial rise (by 60%) in the number of disputes. This is the first year since 1994 that the number of industrial disputes in the manufacturing industry has risen. In contrast, the number of employees involved in industrial disputes fell sharply (by 37%), and this was also reflected in an overall fall (by 35%) in the number of working days lost.

The manufacturing industry accounted for 24% of all industrial disputes during 1998, compared with 17% in 1997. Manufacturing industry employees involved in industrial disputes made up 12% of all employees involved in disputes during 1998, a marked decrease on the 21% recorded for 1997 and only slightly higher than the level experienced in 1996 (8%). Working days lost due to manufacturing industrial disputes accounted for 18% of all working days lost during 1997, representing a substantial decrease on the 27% share recorded in 1997, although higher than the 1996 level (11%).

**19.6 INDUSTRIAL DISPUTES**

Year	Manufacturing	All industries
<b>TOTAL INDUSTRIAL DISPUTES (no.)</b>		
1994	164	560
1995	156	643
1996	112	543
1997	78	447
1998	125	518
<b>EMPLOYEES INVOLVED DIRECTLY AND INDIRECTLY ('000)</b>		
1994	50.2	265.1
1995	86.1	344.3
1996	48.8	577.7
1997	65.8	310.1
1998	41.2	348.3
<b>WORKING DAYS LOST ('000)</b>		
1994	123.2	501.0
1995	159.9	547.6
1996	103.5	928.5
1997	145.6	534.2
1998	95.3	526.2

Source: *Industrial Disputes, Australia* (6322.0).

**Trade union membership**

Trade union membership in the manufacturing industry has been falling steadily during the last 12 years, the proportion of employees with trade union membership decreasing from slightly more than 51% in 1986 to less than 35% in 1998. This represents a fall in union membership of 191,000 manufacturing employees over that period.

From 1997 to 1998 the numbers of manufacturing employees with union membership fell by over 6%, reducing the proportion of manufacturing employees with union membership from 36.6% to 34.5% (table 19.7). Despite the fall in

membership numbers, the manufacturing industry continues to have a higher rate of union membership than the average for all industries. In percentage terms, union membership in all industries has followed a downward trend similar to that in manufacturing.

Table 19.8 shows that, while 36.5% of full-time manufacturing employees belonged to a trade union in 1998, only 16.3% of part-time manufacturing employees were union members. However, the proportion of full-time employees belonging to a trade union fell from 39.3% in 1997, while for part-time employees the proportion rose from 13.0% in 1997. Membership rates for full-time female employees (28.3%) remained significantly lower than for full-time male employees (38.6%), although this gap has been closing.

**19.8 PROPORTION OF TRADE UNION MEMBERS, By Sex—August 1998**

	Manufacturing	All industries
Employees	%	%
<b>MALES</b>		
Full-time	38.6	31.9
Part-time	17.5	18.0
Total	37.5	30.0
<b>FEMALES</b>		
Full-time	28.3	29.8
Part-time	15.5	21.0
Total	25.2	25.8
<b>PERSONS</b>		
Full-time	36.5	31.2
Part-time	16.3	20.2
Total	34.5	28.1

Source: *Employee Earnings, Benefits, and Trade Union Membership, Australia* (6310.0).

**19.7 EMPLOYEES WITH TRADE UNION MEMBERSHIP**

Period	Manufacturing		All industries	
	Trade union members	Proportion of total employment	Trade union members	Proportion of total employment
	'000	%	'000	%
August 1986	545.4	51.2	2 593.9	45.6
August 1988	546.7	48.5	2 535.9	41.6
August 1990(a)	520.9	46.1	2 659.6	40.5
August 1992	455.3	44.4	2 508.8	39.6
August 1994	421.6	40.8	2 283.4	35.0
August 1996	410.1	38.7	2 194.3	31.1
August 1997	378.2	36.6	2 110.3	30.3
August 1998	354.4	34.5	2 037.5	28.1

(a) Excludes persons aged 70 years and over.

Source: *Trade Union Members, Australia* (6325.0);



**19.9 PRIVATE NEW CAPITAL EXPENDITURE IN MANUFACTURING INDUSTRY**

	1995-96	1996-97	1997-98
Industry subdivision	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	1 895	1 997	2 408
Textile, clothing, footwear and leather manufacturing	271	251	287
Wood and paper product manufacturing	1 112	920	901
Printing, publishing and recorded media	673	587	790
Petroleum, coal, chemical and associated product manufacturing	1 719	1 664	1 578
Non-metallic mineral product manufacturing	756	1 071	880
Metal product manufacturing	2 192	1 501	1 671
Machinery and equipment manufacturing	1 611	2 007	2 125
Other manufacturing	227	199	302
<b>Total manufacturing</b>	<b>10 457</b>	<b>10 198</b>	<b>10 942</b>

Source: Private New Capital Expenditure, Australia, Actual and Expected Expenditure (5626.0).

**Capital expenditure**

As table 19.9 shows, new capital expenditure by private sector businesses in the manufacturing industry rose by 7% between 1996-97 and 1997-98, after a fall of 2.5% between 1995-96 and 1996-97. Six of the nine manufacturing subdivisions experienced an increase in new capital expenditure, the greatest increase coming from Other manufacturing (by 52%) followed by Printing, publishing and recorded media (by 35%) and Food, beverage and tobacco manufacturing (by 21%). Of the three subdivisions which decreased their capital expenditure, the largest fall came in Non-metallic mineral product manufacturing (by 18%).

Comparing private new capital expenditure levels in 1997-98 with those of two years earlier shows higher levels in six of the nine manufacturing

subdivisions. Largest increases were in Other manufacturing (33%), Machinery and equipment manufacturing (up 32%), and Food, beverage and tobacco manufacturing (up 27%). Although the Metal product manufacturing industry increased its capital expenditure by 11% between 1996-97 and 1997-98, its expenditure was still 24% lower than in 1995-96.

**Sales and output**

The value of sales by private manufacturing businesses increased by 0.8% from 1996-97 to 1997-98. Printing, publishing and recorded media recorded the largest increase (13%), followed by Petroleum, coal, chemical and associated product manufacturing (5%), and Other manufacturing (5%). The largest falls in sales were recorded in Metal product manufacturing (10%) and Non-metallic mineral product manufacturing (4%).

**19.10 SALES AND OUTPUT(a) BY PRIVATE MANUFACTURING BUSINESSES, Chain Volume Measures(b)**

Industry subdivision	Sales of goods produced		Output of goods	
	1996-97	1997-98	1996-97	1997-98
	\$m	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	43 749	45 294	43 828	45 731
Textile, clothing, footwear and leather manufacturing	9 128	8 861	9 184	8 873
Wood and paper product manufacturing	13 151	13 793	13 299	13 820
Printing, publishing and recorded media	9 622	10 910	9 550	10 949
Petroleum, coal, chemical and associated product manufacturing	34 630	36 378	34 479	36 374
Non-metallic mineral product manufacturing	9 719	9 298	9 792	9 102
Metal product manufacturing	31 931	28 888	31 478	29 028
Machinery and equipment manufacturing	38 732	38 493	38 511	38 754
Other manufacturing	6 508	6 840	6 477	6 940
<b>Total manufacturing(c)</b>	<b>197 168</b>	<b>198 754</b>	<b>196 565</b>	<b>199 569</b>

(a) Output is calculated as sales of goods produced minus opening stocks plus closing stocks. (b) Reference year for chain volume measures is 1996-97. (c) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: Stocks and Sales, Selected Industries, Australia (5629.0).

Manufacturing output (sales adjusted for changes in the level of stocks) increased by 1.5% between 1996–97 and 1997–98 (table 19.10). Six of the nine manufacturing subdivisions increased their output, with the largest increases recorded in Printing, publishing and recorded media (15%), Other manufacturing (7%) and Petroleum, coal, chemical and associated product manufacturing (5%). Metal product manufacturing recorded the largest fall in output (8%), followed by Non-metallic mineral product manufacturing (7%) and Textile, clothing, footwear, and leather manufacturing (3%).

The largest contributors to manufacturing output were Food, beverage and tobacco manufacturing (23%), Machinery and equipment manufacturing (19%), Petroleum, coal, chemical and associated product manufacturing (18%) and Metal product manufacturing (15%).

## Company profits

Profits before income tax earned by incorporated manufacturing businesses rose by 15% between 1996–97 and 1997–98, following a fall of 5.5% from 1995–96 (table 19.11). Profits rose between 1996–97 and 1997–98 in all but one manufacturing subdivision, Machinery and equipment manufacturing, which fell by 18%. Largest increases were for Other manufacturing (59.5%), Metal product manufacturing (32%) and Food, beverage and tobacco manufacturing (30%).

Industry subdivisions contributing most to manufacturing industry profits for 1997–98 were Food, beverage and tobacco manufacturing (25.5%), Petroleum, coal, chemical and associated product manufacturing (19%), Metal product manufacturing (17%) and Machinery and equipment manufacturing (13%).

## Principal manufactured commodities

Table 19.12 shows the total production of selected manufactured commodities for the three years 1995–96 to 1997–98.

**19.11 PROFITS BEFORE INCOME TAX, Manufacturing Companies**

	1995–96	1996–97	1997–98
Industry subdivision	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	2 291	2 285	2 962
Textile, clothing, footwear and leather manufacturing	269	202	233
Wood and paper product manufacturing	731	625	683
Printing, publishing and recorded media	1 127	1 098	1 198
Petroleum, coal, chemical and associated product manufacturing	2 114	1 925	2 259
Non-metallic mineral product manufacturing	754	602	719
Metal product manufacturing	1 656	1 502	1 985
Machinery and equipment manufacturing	1 774	1 842	1 509
Other manufacturing	56	42	67
<b>Total manufacturing</b>	<b>10 711</b>	<b>10 126</b>	<b>11 615</b>

Source: *Company Profits, Australia* (5651.0).

**19.12 SELECTED COMMODITIES PRODUCED BY MANUFACTURING ESTABLISHMENTS(a)**

Commodity	Unit of quantity	1995-96	1996-97	1997-98
Red meat	'000 t	2 652	2 716	2 927
Chicken meat	'000 t	481	497	551
Cheese	'000 t	264	285	300
Butter	'000 t	145	147	154
Beer(b)	mill. L	1 743	1 735	1 757
Tobacco and cigarettes	t	20 390	22 193	21 257
Newsprint	'000 t	446	422	402
Wood pulp	'000 t	1 019	949	958
Undressed sawn timber	'000 m <sup>3</sup>	3 444	3 382	3 650
Hardwood woodchips	'000 t	4 828	4 779	5 665
Automotive gasoline	mill. L	18 358	18 084	18 592
Fuel oil	mill. L	1 998	1 795	1 673
Aviation turbine fuel	mill. L	4 882	5 284	5 423
Automotive diesel oil	mill. L	12 202	12 968	13 183
Portland cement	'000 t	6 397	6 701	7 236
Clay bricks	m	1 455	1 468	1 532
Ready mixed concrete	'000 m <sup>3</sup>	14 556	15 544	17 412
Basic iron, spiegeleisen and sponge iron	'000 t	7 553	7 346	7 928
Blooms and slabs of iron or steel	'000 t	7 951	7 775	8 356
Alumina	'000 t	13 312	13 253	13 538
Zinc	'000 t	330	319	304
Silver	'000 t	351	340	227
Copper	'000 t	282	305	286
Lead	'000 t	223	202	185
Tin	'000 t	550	570	650
Gold	'000 t	318	327	349
Electricity	mill. kWh	167 544	168 415	176 212
Gas(c)	PJ	621	636	649

(a) Data in this table exclude production by single establishment businesses employing fewer than four persons. (b) Includes ale, stout and porter. Excludes extra light beer containing less than 1.15% by volume of alcohol. (c) Available for issue through mains. Includes natural gas.

Source: *Manufacturing Production, Australia (8301.0)*.

## Price indexes

The ABS compiles two price indexes relating to the manufacturing sector: the Price Indexes of Materials Used in Manufacturing Industries; and

the Price Indexes of Articles Produced by Manufacturing Industries (see *Chapter 28, Prices* for more details). Tables 19.13 and 19.14 set out index numbers for selected components of those indexes.

**19.13 PRICE INDEXES, Materials Used in Manufacturing Industries(a)(b)**

Industry	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
Food, beverages and tobacco	100.0	104.3	107.7	111.0	111.7	106.2	110.0	110.5
Textiles and textile products	87.0	88.1	89.9	103.0	100.9	93.0	96.3	94.0
Knitting mills and clothing	104.5	108.1	107.7	109.3	111.4	105.9	107.1	106.4
Footwear	99.8	99.4	102.4	109.5	111.7	111.0	109.7	110.3
Leather and leather products	85.3	93.2	99.6	101.9	95.1	95.0	91.9	93.5
Sawmilling and timber products	104.5	109.2	115.3	111.3	114.0	113.7	119.8	119.8
Paper and paper products	96.3	95.6	89.7	95.8	108.3	97.0	96.4	97.6
Printing and publishing	102.5	103.3	102.7	101.1	114.1	105.8	105.5	108.1
Petroleum and coal products	112.6	121.7	101.9	100.2	103.5	117.2	108.4	94.4
Chemicals	106.2	105.7	103.5	107.8	113.9	110.7	111.9	111.4
Rubber and plastics	100.3	104.5	106.9	118.8	122.0	113.4	113.4	110.1
Non-metallic mineral products	115.2	116.6	109.8	114.3	113.7	113.1	112.6	111.3
Basic metal products	95.4	94.7	87.6	94.0	99.4	93.1	93.4	91.7
Fabricated metal products	101.3	100.9	100.8	104.4	108.7	106.2	107.3	106.2
Transport equipment and parts	101.9	108.0	115.0	116.2	115.1	110.1	113.5	116.8
Electronic equipment and other machinery	99.8	101.8	102.7	106.5	107.8	102.7	104.6	103.7
Other manufacturing	103.4	106.3	111.5	112.3	112.8	110.9	113.8	115.3
<b>All materials</b>	<b>101.4</b>	<b>106.4</b>	<b>104.7</b>	<b>107.6</b>	<b>110.1</b>	<b>106.0</b>	<b>107.0</b>	<b>105.9</b>

(a) Reference base year 1989–90 = 100.0. (b) The index is on a net basis and relates in concept only to materials that enter Australian manufacturing industry from other sectors of the Australian economy or from overseas.

Source: *Price Indexes of Materials Used in Manufacturing Industries, Australia (6411.0)*.

**19.14 PRICE INDEXES, Articles Produced by Manufacturing Industries(a)(b)**

Industry	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
Food, beverages and tobacco	112.3	116.2	120.5	123.1	125.9	127.2	130.4	131.0
Textiles	102.9	101.8	102.2	105.6	106.4	106.8	108.1	106.3
Clothing and footwear	114.9	116.1	117.1	118.3	121.5	122.9	125.0	126.5
Wood, wood products and furniture	114.2	116.5	122.5	126.1	127.1	128.0	129.3	131.1
Paper, paper products and printing	117.3	119.9	122.0	125.2	132.9	135.6	137.5	141.0
Chemicals and chemical products	109.9	111.1	110.3	113.6	117.0	116.1	115.5	115.6
Petroleum products	134.3	143.9	127.2	120.9	125.0	130.2	120.4	102.8
Non-metallic mineral products	119.3	119.3	120.8	124.2	124.6	125.4	126.8	127.2
Basic metal products	99.9	100.6	99.8	107.2	109.9	103.7	107.9	104.2
Fabricated metal products	114.3	114.7	114.8	116.2	119.2	120.7	122.0	122.6
Transport equipment	112.7	116.0	119.1	120.7	122.3	121.9	123.1	124.4
Other machinery and equipment	107.0	109.3	109.9	111.2	112.4	113.5	114.3	113.7
Miscellaneous manufacturing products	107.8	109.6	112.4	116.2	119.7	120.8	121.0	121.6
<b>All Manufacturing Industry Index</b>	<b>111.6</b>	<b>114.3</b>	<b>115.5</b>	<b>118.1</b>	<b>121.1</b>	<b>121.8</b>	<b>123.4</b>	<b>123.1</b>

(a) Reference base year 1988–89 = 100.0. (b) For a full description of Division C, Manufacturing and the subdivisions within the Manufacturing Division, see Australian Standard Industrial Classification (ASIC) (1201.0), 1983 edition.

Source: *Price Indexes of Articles Produced by Manufacturing Industry, Australia (6412.0)*.

**19.15 EXPENDITURE ON RESEARCH AND DEVELOPMENT, Manufacturing Businesses**

	1995-96	1996-97	1997-98
Industry	\$m	\$m	\$m
Food, beverage and tobacco manufacturing	291	232	179
Textile, clothing, footwear and leather manufacturing	26	21	22
Wood and paper product manufacturing	184	191	117
Printing, publishing and recorded media	23	17	19
Petroleum, coal, chemical and associated product manufacturing	327	309	308
Non-metallic mineral product manufacturing	82	66	72
Metal product manufacturing	326	365	334
Motor vehicle and part and other transport equipment manufacturing	415	401	436
Photographic and scientific equipment manufacturing	131	91	93
Electronic and electrical equipment and appliance manufacturing	389	423	442
Industrial machinery and equipment manufacturing	128	144	123
Other manufacturing	16	46	36
<b>Total manufacturing</b>	<b>2 339</b>	<b>2 305</b>	<b>2 182</b>

Source: Research and Experimental Development, Businesses, Australia (8104.0).

### Research and experimental development

Research and experimental development (R&D) activity, in the business context, is defined as systematic investigation or experimentation involving innovation or technical risk, the outcome of which is new knowledge, with or without a specific practical application or new or improved products, processes, materials, devices or services. R&D activity also extends to modifications to existing products/processes. In 1997-98, manufacturing industry accounted for 54% of R&D expenditure by all industries.

However, as table 19.15 shows, between 1996-97 and 1997-98 there was a fall of 5% in R&D expenditure within the manufacturing industry, from \$2,305m to \$2,182m. Of those subdivisions which decreased their R&D expenditure, the most significant falls were in Wood and paper product manufacturing (down 39%), Food, beverage and tobacco manufacturing (down 23%), Other manufacturing (down 22%) and Industrial machinery and equipment manufacturing (down 15%). This was partly offset by rises in Printing, publishing and recorded media (up 12%), Non-metallic mineral product manufacturing (up 9%) and Motor vehicle and part and other transport equipment (up 9%).

Businesses in the Motor vehicle and part and other transport equipment industry increased their share of R&D expenditure from 17% in 1996-97 to 20% in 1997-98. That industry, the Electronic and electrical equipment and appliance manufacturing industry (20%) and the Metal product manufacturing industry (15%), together account for 56% of total R&D expenditure of the manufacturing industry sector.

Table 19.16 shows that, of the manufacturing industries' total R&D expenditure for 1997-98, 12% was on capital expenditure, 39% on labour costs and 49% on other current expenditure. The Wood and paper product manufacturing and Metal product manufacturing industries devoted the highest proportion of their total R&D expenditure to capital expenditure (26% and 21%, respectively). Metal product manufacturing accounted for the highest share (27%) of total capital expenditure on R&D by manufacturing industries.

While labour costs accounted for 39% of total R&D expenditure for manufacturing industries, they accounted for 61% of R&D expenditure by the Printing, publishing and recorded media industry. In Photographic and scientific equipment manufacturing, labour costs made up 56% of total R&D expenditure.

**19.16 EXPENDITURE ON RESEARCH AND DEVELOPMENT, Manufacturing Businesses—1997–98**

Industry	Capital expenditure \$m	Labour costs(a) \$m	Other current expenditure \$m	Total \$m
Food, beverage and tobacco manufacturing	22.5	69.9	86.1	178.5
Textile, clothing, footwear and leather manufacturing	2.1	10.0	10.0	22.1
Wood and paper product manufacturing	30.0	28.9	57.7	116.6
Printing, publishing and recorded media	n.p.	11.7	n.p.	19.1
Petroleum, coal, chemical and associated product manufacturing	25.9	138.6	143.4	307.9
Non-metallic mineral product manufacturing	10.1	25.9	36.4	72.4
Metal product manufacturing	70.8	114.2	149.4	334.4
Motor vehicle and part and other transport equipment manufacturing	49.2	150.4	236.7	436.2
Photographic and scientific equipment manufacturing	4.6	52.3	36.4	93.2
Electronic and electrical equipment and appliance manufacturing	21.3	179.8	240.6	441.7
Industrial machinery and equipment manufacturing	7.9	64.0	51.5	123.5
Other manufacturing	n.p.	11.2	n.p.	35.9
<b>Total manufacturing</b>	<b>264.2</b>	<b>856.8</b>	<b>1 060.5</b>	<b>2 181.6</b>

(a) Includes wages and salaries, payroll tax, payments to contract staff on the payroll, fringe benefits tax and workers' compensation, holiday pay, long service leave payments, sick pay, and employer contributions to superannuation and pension schemes.

Source: Research and Experimental Development, Businesses, Australia (8104.0).

**Direct exports by manufacturers**

Table 19.17 shows the proportions of manufacturing employment and turnover accounted for by manufacturing establishments, classified by the extent to which they directly engage in exporting activity. It also shows the value of those direct exports as a percentage of total sales of goods produced.

Generally, exporting establishments have higher turnover per person employed than non-exporting establishments. In 1996–97, establishments which undertook some exporting had 43% of manufacturing employment, but

contributed almost 58% of manufacturing turnover. Industries where exporting establishments contributed the most to industry turnover were Petroleum, coal, chemical and associated product manufacturing (71% of industry turnover) and Machinery and equipment manufacturing (68%). Industries where exporting establishments contributed least to industry turnover were Other manufacturing (24%) and Printing, publishing and recorded media (25%). On average, exporting establishments showed higher wages and salaries per person employed than non-exporting establishments.

Overall, manufacturers directly exported almost 15% of the goods they produced in 1996–97. Industries with the highest levels of direct exporting were Metal product manufacturing (25%) and Food, beverage and tobacco manufacturing (18%). Industries which exported less than 5% of the goods they produced were

Printing, publishing and recorded media (4%), Non-metallic mineral product manufacturing (4%) and Other manufacturing (3%).

Businesses which employed 100 or more persons had the highest proportion of exports in their sales (17%), followed by businesses which employed 0–49 people (12%) and business employing 50–99 people (12%).

### 19.17 MANUFACTURING ESTABLISHMENTS, Summary of Operations by Proportion of Exports—1996–97

Industry subdivision	Establishments that do not export		Establishments with exports				
			Up to and including 50% of sales of goods produced		Of more than 50% of sales of goods produced		Exports as % of sales of goods produced
	Employment at end of June(a)	Turnover	Employment at end of June(a)	Turnover	Employment at end of June(a)	Turnover	
	%	%	%	%	%	%	%
Food, beverage and tobacco manufacturing	46.7	37.8	38.4	45.9	14.9	16.4	18.0
Textile, clothing, footwear and leather manufacturing	60.6	48.2	33.8	40.4	5.6	11.4	13.7
Wood and paper product manufacturing	73.0	60.9	26.1	36.0	0.9	3.0	6.4
Printing, publishing and recorded media	81.2	74.7	18.5	23.1	0.3	2.2	4.0
Petroleum, coal, chemical and associated product manufacturing	40.6	29.1	57.8	68.8	1.7	2.1	9.5
Non-metallic mineral product manufacturing	66.3	68.7	32.4	29.9	1.3	1.4	3.6
Metal product manufacturing	60.1	38.1	34.4	42.6	5.5	19.2	24.6
Machinery and equipment manufacturing	45.3	32.2	47.6	59.4	7.1	8.5	16.6
Other manufacturing	81.0	76.1	18.0	22.7	0.9	1.2	2.9
<b>Total manufacturing</b>	<b>57.2</b>	<b>42.2</b>	<b>37.0</b>	<b>47.8</b>	<b>5.8</b>	<b>10.0</b>	<b>14.9</b>

(a) Includes working proprietors.

Source: *Manufacturing Industry, Australia* (8221.0).

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## Introduction

The construction industry has a major influence on every Australian. It provides the homes in which we live, the places in which most of us work and play, our schools and hospitals, and the infrastructure such as roads, water and electricity supply, and telecommunications, essential for our day to day living. A number of other parts of the Australian economy are also closely linked to the construction industry and its activities. These include in particular, parts of the manufacturing, wholesale and retail trade and finance industries, in supplying components, fittings and furnishings, and in financing construction. Parts of the professional services industry—such as the architectural and engineering professions—are also closely linked to the construction industry.

The construction industry engages in three broad areas of activity: residential building (houses, flats, etc.), non-residential building (offices, shops, hotels, etc.), and engineering construction (roads, bridges, water and sewerage, etc.). Construction activity is undertaken by both the private and public sectors in Australia. The private sector is engaged in all three categories of construction, and plays the major role in residential and other building activity. The public sector plays a key role in initiating and undertaking engineering construction activity, and building activity relating to health and education.

In 1997–98, the construction industry contributed about 5.4% to the gross product of all industries, as measured by production-based Gross Domestic Product (chain volume measures). It employed 597,000 people, either as employees or as self employed contractors. This represented 7% of the employment in all industries.

## Performance of the construction industry

### Summary by industry

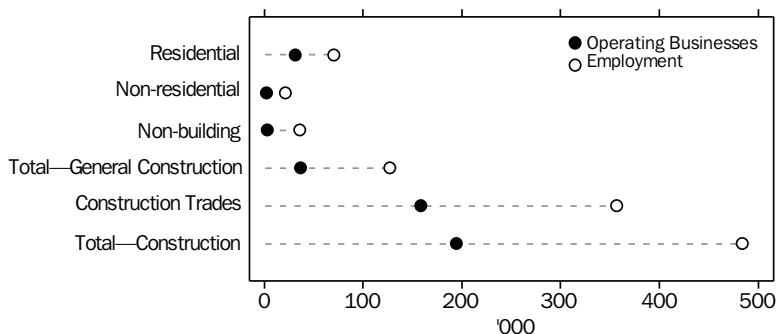
For the reference year 1996–97, the first detailed survey of the construction industry was undertaken since the reference year 1988–89. While the ABS regularly surveys the construction industry through its program of economy-wide surveys, the results are normally only available at the Australia level, and only for broad industries. The 1996–97 Construction Industry Survey provided the first detailed industry and State/Territory estimates for the 1990s. The survey found that there were some 194,300 operating businesses in the construction industry at end June 1997, with total employment of 484,100 (table 20.1 and graph 20.2). The construction trade services within the construction industry accounted for over 80% of the number of businesses and almost three-quarters of the people working in the industry.

Table 20.1 presents, for all businesses in the construction industry, summary measures of performance, assets and liabilities by component industry. Operating profit before tax was higher in the construction trades and residential construction parts of the industry. Despite the dominance of the construction trades in the number of businesses and employment, the general construction part of the industry accounted for over half of total income (56%) and operating expenses (60%). Over half the assets and liabilities of the construction industry were also held in the general construction part of the industry.

**20.1 CONSTRUCTION INDUSTRY, Summary of Performance by Component Industry—1996–97**

Selected indicators	Units	General construction						Total construction
		Building construction			Non-building construction	Total	Construction trade services	
		Residential construction	Non-residential building construction	Total				
Operating businesses—June 1997	'000	31.0	2.1	33.1	3.1	36.3	158.0	194.3
Employment—June 1997	'000	70.3	21.3	91.6	35.6	127.2	356.9	484.1
Wages and salaries	\$m	891.2	773.2	1 664.4	1 645.1	3 309.5	4 870.4	8 179.8
Turnover	\$m	13 829.0	10 416.6	24 245.5	8 383.1	32 628.6	25 270.2	57 898.8
Total income	\$m	14 108.5	10 491.4	24 599.9	8 461.9	33 061.8	25 532.9	58 594.7
Total operating expenses	\$m	13 113.8	10 552.5	23 666.3	8 127.0	31 793.3	21 604.8	53 398.1
Operating profit before tax	\$m	1 117.7	70.3	1 188.0	362.3	1 550.3	3 914.3	5 464.6
Total assets	\$m	8 202.1	3 785.5	11 987.7	5 404.9	17 392.6	8 172.4	25 565.0
Total liabilities	\$m	5 795.5	2 685.3	8 480.8	3 580.5	12 061.3	4 557.8	16 619.1

Source: Private Sector Construction Industry, Australia (8772.0).

**20.2 CONSTRUCTION INDUSTRY, Operating Businesses and Employment by Component Industry—June 1997**

Source: Private Sector Construction Industry, Australia (8772.0).

**Summary by State/Territory**

Table 20.3 presents, for all businesses in the construction industry, summary measures of performance, assets and liabilities by State and Territory. New South Wales, Victoria and Queensland dominate the industry in terms of the proportion of total income, expenses and operating profit before tax, as well as number of businesses and employment (graph 20.4).

Performance averages and ratios provide some insights into the State and Territory data. Average employment per business ranged between 2.0 and 2.6 persons Australia-wide. The lowest average employment per business occurred in

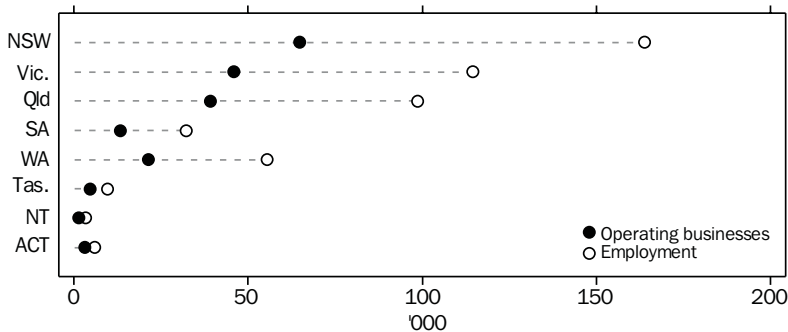
the Australian Capital Territory and Tasmania, and the highest average employment occurred in Western Australia.

Average income and operating expenses per business also varied between the larger and smaller States. The lowest average income and operating expenses per business occurred in Tasmania, and the higher levels in Queensland, South Australia and Victoria. Despite Tasmania's lower average income and expenses per business, businesses in that State experienced the highest average profit margin (19.9%), followed by those in the Northern Territory (13.5%) and Western Australia (12.5%).

**20.3 CONSTRUCTION INDUSTRY, Summary of Performance by State/Territory—1996–97**

Selected indicators	Units	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Operating businesses—June 1997	'000	64.7	46.0	39.3	13.4	21.4	4.7	1.6	3.2	<b>194.3</b>
Employment—June 1997	'000	163.8	114.5	98.6	32.2	55.4	9.8	3.5	6.2	<b>484.1</b>
Wages and salaries	\$m	2 804.2	2 054.9	1 684.6	428.4	998.9	90.4	50.9	67.6	<b>8 179.8</b>
Turnover	\$m	18 002.8	14 147.6	13 490.9	4 180.4	6 215.3	620.2	370.2	*871.3	<b>57 898.8</b>
Total income	\$m	18 363.4	14 247.9	13 600.8	4 221.8	6 287.0	629.6	367.1	*877.0	<b>58 594.7</b>
Total operating expenses	\$m	16 720.5	13 211.0	12 377.0	3 930.9	5 538.7	508.3	321.4	*790.3	<b>53 398.1</b>
Operating profit before tax	\$m	1 796.7	1 085.9	1 234.6	331.2	772.7	123.4	49.8	*70.4	<b>5 464.6</b>
Total assets	\$m	9 419.6	6 127.2	6 065.1	1 487.7	2 130.8	105.1	*117.7	111.7	<b>25 565.0</b>
Total liabilities	\$m	6 314.8	3 695.7	3 916.4	863.3	1 608.6	*63.1	*73.7	*83.6	<b>16 619.1</b>

Source: *Private Sector Construction Industry, Australia* (8772.0).

**20.4 CONSTRUCTION INDUSTRY, Operating Businesses and Employment by State/Territory—June 1997**

Source: *Private Sector Construction Industry, Australia* (8772.0).

## Trends in construction activity

Trends over recent years in the level of activity of the construction industry as a whole are shown in table 20.5. This illustrates that, in 1997–98, residential construction accounted for 38% of the activity, with engineering works accounting for a further 35%, and non-residential construction accounting for the remaining 27%. These were similar to the proportions in 1996–97, although the growth in activity from 1996–97 to 1997–98 was most marked in residential building (19%).

The table also illustrates how the pattern of building activity changes over time. The pattern was very different in 1993–94. In that year, residential building had accounted for 45% of total construction activity, non-residential

building had contributed just under a quarter of activity (22%) and engineering construction had accounted for the remaining 32%. By 1997–98, the proportion of total construction activity occurring in residential building declined, replaced progressively by growth in the proportion of total activity coming from non-residential building and engineering construction.

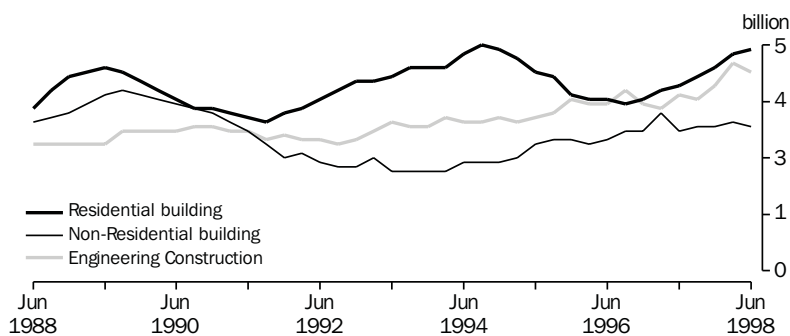
Graph 20.6 shows the data from table 20.5 in a longer time series and on a quarterly basis. It shows the decline in the value of residential construction from about the end of 1994, followed by a steady recovery from about mid 1996, while the engineering construction and non-residential building series turned down after the March quarter 1998.

**20.5 CONSTRUCTION ACTIVITY, By Type of Activity, At Average 1989–90 Prices**

	Residential building	Non-residential building	Engineering construction	Total construction(a)
Financial year	\$m	\$m	\$m	\$m
1991–92	14 302	10 317	11 771	36 477
1992–93	16 720	9 244	12 129	38 140
1993–94	18 323	9 078	13 135	40 586
1994–95	19 022	10 144	13 455	42 666
1995–96	15 745	11 486	14 716	41 955
1996–97	15 619	12 755	15 166	43 540
1997–98	18 509	12 850	16 837	48 223

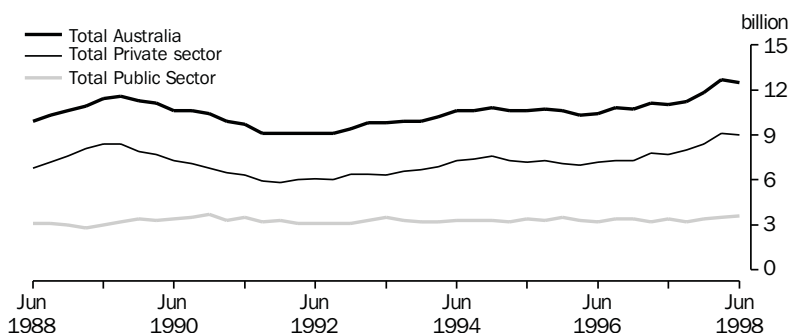
(a) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Building Activity, Australia* (8752.0); *Engineering Construction Activity, Australia* (8762.0).

**20.6 QUARTERLY CONSTRUCTION ACTIVITY(a), By Type of Activity**

(a) Chain volume measures, reference year 1996–97, seasonally adjusted.

Source: *Building Activity, Australia* (8752.0); *Engineering Construction Activity, Australia* (8762.0).

**20.7 QUARTERLY CONSTRUCTION ACTIVITY(a), By Sector**

(a) Chain volume measures, reference year 1996–97, seasonally adjusted.

Source: *Building Activity, Australia* (8752.0); *Engineering Construction Activity, Australia* (8762.0).

Graph 20.7 shows that construction activity for the public sector has remained relatively constant at around \$3b each quarter over the last ten years. The volatility evident in total construction series is mainly due to private sector construction

activity. The growth in total construction activity from the June quarter 1997 until the March quarter 1998 was driven by the growth in private sector activity.

## Residential building

Residential building involves the construction of dwelling units, which comprise new houses, new other residential buildings (flats, apartments, villa units, townhouses, duplexes, etc.), and dwellings created as part of alterations and additions to existing buildings (including conversions to dwelling units) and as part of the construction of non-residential buildings.

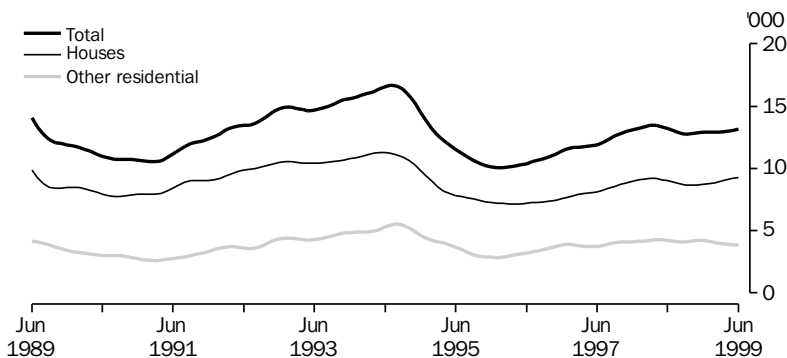
The trend in total dwelling unit approvals grew for three and half years from February 1991, peaking in July 1994 (graph 20.8). The trend then declined to December 1995, to a level almost 40% below the July 1994 peak. The trend for dwelling units approved was relatively flat between December 1995 and June 1996 prior to strong growth until April 1998. Since then there has been a relatively flat period, with the number of

dwelling units approved in June 1999 being 0.5% lower than in June 1998.

## New houses

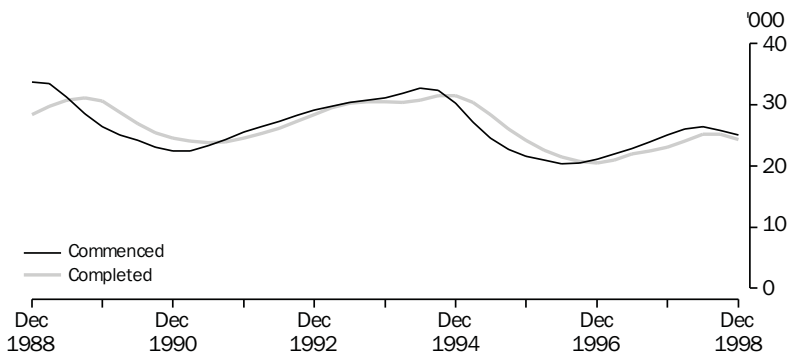
Graph 20.9 illustrates the cyclical pattern of new house commencements. Lows were recorded in 1990 and 1996, with peaks in 1998 and 1994. New house construction grew throughout 1992, 1993 and 1994, the number of commencements peaking in the June quarter 1994. New house commencements fell in each quarter of 1994–95 and 1995–96, but grew in each quarter of 1996–97. There was continued growth in the trend up to the June quarter 1998 for new house commencements, although the rate of growth in the trend eased in the first half of 1998, followed by a fall in commencements to the December quarter 1998. House completions generally follow a similar pattern to commencements.

**20.8 NUMBER OF DWELLING UNITS APPROVED, Trend Estimates**



Source: *Building Approvals, Australia* (8731.0).

**20.9 NUMBER OF NEW HOUSES CONSTRUCTED, Trend Estimates**



Source: *Building Activity, Australia* (8752.0).



The trend in new house commencements is reflected in table 20.10, which shows that for both new house approvals and new other residential construction, the number of approvals was higher than the number of commencements, and commencements were higher than completions. At other points in the building cycle, the number of approvals and commencements can fall behind completions.

In 1998, approvals and commencements of new houses accounted for 70% of the number of approved and commenced new residential dwelling units (i.e. excluding approvals for conversions). Completed houses represented 71% of all new residential dwelling units completed.

The table also shows that residential building activity is dominated by the private sector. In 1998, this sector accounted for 97% of approvals, commencements and completions of new houses, the public sector being responsible for the remainder. The public sector was a little more significant in 'new other residential building' work, accounting for 6% of approvals, commencements and completions.

**20.10 RESIDENTIAL BUILDING, By Public/Private Sector—1998**

	New houses	New other residential dwelling units	Conversions, etc.
	no.	no.	no.
Private sector			
Approved	104 014	42 869	3 091
Commenced	100 370	40 795	3 811
Completed	96 525	36 848	3 606
Public sector			
Approved	2 990	2 970	3
Commenced	2 734	2 935	68
Completed	2 089	2 558	39
Total			
Approved	107 004	45 839	3 094
Commenced	103 104	43 730	3 879
Completed	98 614	39 406	3 645

Source: *Building Approvals, Australia* (8731.0); *Building Activity, Australia* (8752.0).

## New other residential building

Other residential building refers to structures built for accommodation purposes other than houses. This includes buildings such as blocks of flats, home units, attached townhouses, villa units, terrace houses, semi-detached houses and maisonettes. The level of activity for this type of building is highly variable and does not follow the regular pattern experienced in house construction. This is because of the generally larger size of other residential building construction jobs and the varying extent of speculative building of private townhouses, flats, home units and similar residential building projects over time.

Whereas table 20.10 presented the number of new other residential dwelling units approved, commenced and completed in 1998, graph 20.11 shows a ten year time series of commencements and completions of these types of buildings ending with the December quarter 1998. Despite quarter to quarter volatility, it can be seen that the completions series generally has lagged the commencements series by one to two quarters, although this pattern has been less clear since the June quarter 1997.

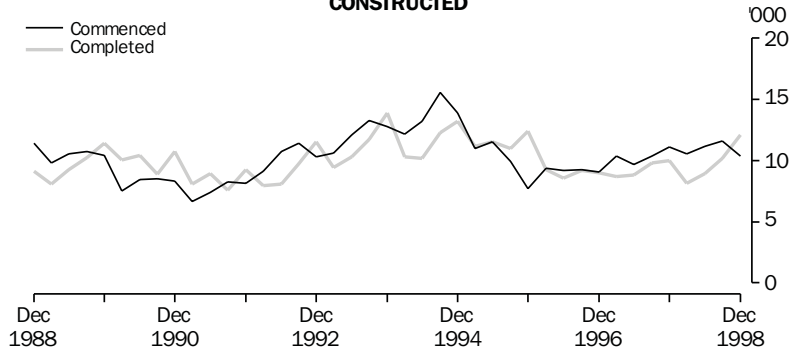
The number of new other residential dwelling units commenced in the December quarter 1998 was 7% lower than in the December quarter 1997 and 14% greater than in the December quarter 1996. On the other hand, the number of other residential dwelling units completed in the December quarter 1998 was 21% higher than in the December quarter 1997 and 35% higher than in the December quarter 1996.

## Other dwellings

Apart from the construction of new residential buildings, dwellings can be created as part of alterations and additions to existing buildings (including conversions to dwelling units) and as part of the construction of non-residential buildings.

Table 20.10 shows that 3,094 such dwelling units were approved in 1998, an increase of 40% from the 2,208 units approved in 1997. There were 3,879 units commenced (a fall of 10% from 1997) and 3,645 units completed in 1998 (an increase of 31%).

### 20.11 NUMBER OF NEW OTHER RESIDENTIAL UNITS CONSTRUCTED



Source: *Building Activity, Australia* (8752.0).

### Value of residential building

As table 20.12 shows, total approvals for new residential building were valued at \$17,032m in 1998, and the value of work done was slightly lower at \$16,861m. New house approvals accounted for 72% of the value of new residential building approved, and new other residential building for 28%.

#### 20.12 VALUE OF RESIDENTIAL BUILDING—1998

	Approved	Work done
	\$m	\$m
New residential buildings		
New houses	12 228	11 731
New other residential buildings	4 804	5 130
Total new residential buildings	17 032	16 861
Alterations and additions to residential buildings(a)	3 004	3 189

(a) Valued at \$10,000 or more.

Source: *Building Approvals, Australia* (8731.0); *Building Activity, Australia* (8752.0).

### Non-residential building

As table 20.13 shows, the total value of non-residential building work approved in 1998 was 4% higher than in 1997, with the value of work done in 1998 being 7% higher. Whereas in 1997 the value of work done was very similar to the value of approvals, in 1998 the value of non-residential building work done was 5% higher than the value of work approved.

Shops, offices and other business premises together accounted for 50% of both the value of non-residential building approved and the work done in 1998.

**20.13 VALUE OF NON-RESIDENTIAL BUILDING**

	1997		1998	
	Approved	Work done	Approved	Work done
	\$m	\$m	\$m	\$m
Hotels, etc.	1 147	1 098	1 007	1 125
Shops	1 987	2 310	2 093	2 322
Factories	1 071	1 140	924	917
Offices	1 950	2 012	2 213	2 460
Other business premises	1 680	1 830	2 365	2 260
Educational	1 384	1 365	1 391	1 387
Religious	65	82	82	85
Health	1 380	1 081	1 585	1 321
Entertainment and recreational	1 483	1 467	997	1 410
Miscellaneous	704	704	705	739
<b>Total non-residential building(a)</b>	<b>12 851</b>	<b>13 090</b>	<b>13 363</b>	<b>14 026</b>

(a) Valued at \$50,000 or more.

Source: *Building Approvals, Australia* (8731.0); *Building Activity, Australia* (8752.0).

## Building activity in chain volume measures

Chain volume measures of the value of residential and non-residential building work done are presented in table 20.14. Chain volume measures show changes in value after the direct effects of price changes have been eliminated.

In terms of chain volume measures, the value of building work done rose by \$2,984m (11%) to \$31,358m in 1997–98, following a rise of 4% in 1996–97. Most (83%) of the \$2,984m increase was from the higher value of new residential building work done, which increased by 19% on the value in 1996–97.

## Engineering construction

This section contains estimates of engineering construction activity in Australia for both public and private sector organisations. These estimates, together with the preceding data on residential and non-residential building, complete the picture of construction activity in Australia.

The total value of engineering construction work in 1998 (\$18,226m) was 18% higher than in 1997 (table 20.15). The increase of \$2,795m was substantially due to the increase in work done for the private sector (up by \$1,939m). The value of the work done for the public sector in 1998 accounted for 56% of the value of all work done, down from 61% in 1997.

**20.14 VALUE OF BUILDING WORK DONE, Chain Volume Measures(a)**

	New residential building			Alterations and additions to residential buildings	Non-residential building	Total building(b)
	Houses	Other residential buildings	Total			
	\$m	\$m	\$m	\$m	\$m	\$m
1992–93	11 038	3 341	14 393	2 315	9 247	<b>25 995</b>
1993–94	11 930	3 918	15 861	2 450	9 081	<b>27 431</b>
1994–95	11 763	4 583	16 349	2 668	10 143	<b>29 198</b>
1995–96	9 391	3 781	13 172	2 572	11 486	<b>27 236</b>
1996–97	9 289	3 761	13 049	2 570	12 755	<b>28 374</b>
1997–98	11 148	4 366	15 514	2 990	12 855	<b>31 358</b>

(a) Reference year for chain volume measures is 1996–97. (b) Chain volume measures are generally not additive—for most periods, the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Building Activity, Australia* (8752.0).

In 1998, more than two-thirds (69%) of the value of all engineering work done related to Roads, highways and sub-divisions, Heavy industry and Telecommunications. In 1997, these projects accounted for 65% of the value of all work done.

## Price indexes of materials used in building

Two price indexes measure the changes in prices of selected materials used in the construction of buildings. These are described below.

## Price index of materials used in house building

The all groups index (a weighted average of the six State capital cities) rose by 1.3 index points in 1998–99. Table 20.16 shows that there were rises in all capital cities, the largest in Sydney (1.9 index points) and Adelaide (1.7 index points).

**20.15 VALUE OF ENGINEERING CONSTRUCTION WORK DONE, By Public/Private Sector and Nature of Project**

	1997			1998		
	For the private sector	For the public sector	Total	For the private sector	For the public sector	Total
	\$m	\$m	\$m	\$m	\$m	\$m
Roads, highways and subdivisions	1 524	3 296	4 819	2 013	3 784	5 797
Bridges	29	217	246	26	248	274
Railways	94	1 046	1 140	194	945	1 139
Harbours	142	139	281	240	134	374
Water storage and supply	127	317	444	133	337	470
Sewerage and drainage	90	457	547	86	530	616
Electricity generation, transmission and distribution	489	1 119	1 608	553	958	1 511
Pipelines	265	44	309	356	72	428
Recreation	573	202	775	597	226	823
Telecommunications	126	2 415	2 542	61	2 967	3 028
Heavy industry	2 502	158	2 660	3 630	70	3 700
Other	44	16	60	54	12	66
<b>Total</b>	<b>6 005</b>	<b>9 426</b>	<b>15 431</b>	<b>7 943</b>	<b>10 283</b>	<b>18 226</b>

Source: *Engineering Construction Activity, Australia* (8762.0).

**20.16 PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING, Six State Capital Cities(a)(b)**

Financial year	Weighted average of six State capital cities	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart
1993–94	112.0	111.3	112.1	113.5	117.1	109.1	112.8
1994–95	115.4	115.0	115.9	115.9	118.8	112.7	117.3
1995–96	115.7	115.9	115.4	115.1	118.2	114.8	120.7
1996–97	116.1	116.3	115.3	115.3	120.6	115.3	120.1
1997–98	118.2	119.7	117.1	117.1	123.3	115.9	121.0
1998–99	119.5	121.6	118.0	118.2	125.0	116.1	122.2

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movement within each city individually. They do not compare price levels between cities.

Source: *Price Index of Materials Used in House Building, Six State Capital Cities* (6408.0).

## Price index of materials used in building other than house building

The index for materials used in building other than house building rose in 1998–99 by one index point (table 20.17). This increase in the average reflected rises in all capital cities except Perth, which decreased by one-half index point.

Table 20.18 presents the composition of the index in terms of the materials used. This shows that the rise in the index reflected increases between 1997–97 and 1998–99 in most materials components of the index, with higher increases occurring in paint and other coatings (an increase of 6.7 index points), clay bricks (4.5 index points) and structural timber (3.7 index points).

Decreases occurred in a number of components, most noticeably in non-ferrous pipes and fittings (7 index points) and reinforcing steel bar fabric and mesh (2.8 index points).

**20.17 PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING, Six State Capital Cities(a)(b)**

Financial year	Weighted average of six State capital cities	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart
1993–94	107.5	107.0	106.7	110.2	107.9	107.1	110.1
1994–95	110.4	110.3	108.9	112.9	110.9	110.1	112.2
1995–96	112.7	112.6	111.1	115.0	112.7	113.2	115.1
1996–97	113.2	113.1	110.9	115.9	114.1	114.6	116.3
1997–98	114.2	114.4	111.4	117.2	115.1	114.6	117.4
1998–99	115.2	115.2	113.2	118.4	115.5	114.1	118.5

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities.

Source: *Price Index of Materials Used in Building Other than House Building, Six State Capital Cities (6407.0)*.

**20.18 PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING(a)**

Material	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
Structural timber	127.1	128.3	120.5	116.4	121.7	125.4
Clay bricks	107.8	111.0	110.0	108.7	114.6	119.1
Ready mixed concrete	106.7	112.4	108.2	106.6	107.2	106.3
Steel decking cladding and sheet products	107.5	108.9	110.9	112.9	114.9	114.4
Structural steel	104.3	105.3	109.3	112.5	113.1	113.4
Reinforcing steel bar fabric and mesh	112.7	111.5	112.0	111.6	112.7	109.9
Aluminium windows	99.7	105.4	108.4	108.5	109.0	110.5
Non-ferrous pipes and fittings	102.4	118.1	129.4	128.8	135.6	128.6
Builders' hardware	115.3	116.6	119.5	118.3	120.0	123.4
Paint and other coatings	119.9	123.3	129.1	135.7	136.0	142.7
<b>All groups</b>	<b>107.5</b>	<b>110.4</b>	<b>112.7</b>	<b>113.2</b>	<b>114.2</b>	<b>115.2</b>

(a) Reference base year 1989–90 = 100.0.

Source: *Price Index of Materials Used in Building Other Than House Building, Six State Capital Cities (6407.0)*.

**20.19 AVERAGE WEEKLY EARNINGS, Construction and All Industries**

	Construction		All industries	
	Full-time adult employees	All employees	Full-time adult employees	All employees
	\$	\$	\$	\$
May 1993	646	579	633	518
May 1994	709	635	656	532
May 1995	730	662	688	548
May 1996	751	681	715	564
May 1997	792	718	737	578
May 1998	808	739	768	596
May 1999	831	750	791	611

Source: *Average Weekly Earnings* (6302.0).

## Average weekly earnings in the construction industry

Average weekly earnings provide useful information on the cost of labour in the construction industry. This complements the information provided in the previous section on the cost of materials in the construction industry.

Average weekly earnings have increased steadily in the construction industry, and in all industries combined, over the past six years. In the 12 months to May 1999, the construction industry recorded an average increase of 1.5% for all employees compared to an increase of 2.5% for all industries combined (table 20.19). For full-time adult employees the increase was 2.8% in the construction industry and 3.0% for all industries.

The table also shows that average weekly earnings for all employees in the construction industry are 22.7% higher than for all employees across all industries, although average weekly earnings for full-time employees are only 5.1% above the average for all industries. This reflects the effect of the higher rates for part-time and casual employees in the construction industry.

## Industrial disputes

Of the 518 industrial disputes during 1998, 140 (27%) affected the construction industry (table 20.20). These 140 disputes involved (either directly or indirectly) 107,000 construction industry employees and resulted in the loss of 210,900 working days. This represents 40% of the total number of working days lost due to all industrial disputes in Australia in 1998.

**20.20 INDUSTRIAL DISPUTES, Construction and All Industries—1998**

	Construction	All industries
Total industrial disputes (no.)	140	518
Employees involved (directly and indirectly) ('000)	107.0	348.3
Working days lost ('000)	210.9	526.2

Source: *Industrial Disputes, Australia* (6322.0).

Table 20.21 shows that in 1998 the construction industry recorded an average of 524 working days lost per thousand employees, compared with an average of 72 across all industries. Western Australia, Victoria and the Australian Capital Territory were the most strike affected, with 1,107, 764 and 691 working days lost per thousand construction industry employees, respectively. Tasmania and the Northern Territory reported little or no strike activity in the construction industry.

**20.21 WORKING DAYS LOST DUE TO INDUSTRIAL DISPUTES, Construction and All Industries by State/Territory(a)—1998**

	Construction per '000 employees	All industries per '000 employees
NSW	388	78
Vic.	764	108
Qld	340	38
SA	161	30
WA	1 107	83
Tas.	7	19
NT	0	8
ACT	691	36
<b>Aust.</b>	<b>524</b>	<b>72</b>

(a) The basis for the calculation of working days lost per thousand employees was changed in January 1995 to use estimates of employees taken from the ABS Labour Force Survey only.

Source: *Industrial Disputes, Australia* (6322.0).

## Trade union membership

Table 20.22 shows the general trend of declining membership of trade unions, both across all industries and within the construction industry. During the 12 months to August 1998, there was a large fall in the number of trade union members in the construction industry, from 115,000 to 100,600. This represents a fall in the proportion of trade union members, from 34% at August 1997 to 25% at August 1998. This fall has seen the construction industry revert to a lower proportion of trade union members than in all industries combined (28%), after having risen above the latter during 1997.

In the construction industry, a higher proportion of full-time employees (28%) than part-time employees (8%) were trade union members (table 20.23). This pattern was the same for both male and female employees, although a much lower proportion of females than males were trade union members (5% compared with 28%). Across all industries a much higher proportion of female employees were trade union members (26%) than those in the construction industry (5%).

**20.22 EMPLOYEES WHO WERE TRADE UNION MEMBERS, Construction Industry—1992–98(a)**

	Construction	All industries
NUMBER OF MEMBERS ('000)		
1992	124.5	2 508.8
1993	110.1	2 376.9
1994	113.4	2 283.4
1995	105.1	2 251.8
1996	109.6	2 194.3
1997	115.0	2 110.4
1998	100.6	2 037.5
PROPORTION OF EMPLOYEES IN TRADE UNIONS (%)		
1992	42.1	39.6
1993	35.3	37.6
1994	34.1	35.0
1995	30.6	32.7
1996	29.7	31.1
1997	33.5	30.3
1998	25.2	28.1

(a) At August.

Source: *Trade Union Members, Australia* (6325.0).

**20.23 PROPORTION OF TRADE UNION MEMBERS, By Sex—August 1998**

	Construction	All industries
	%	%
MALES		
Full-time	29.3	31.9
Part-time	13.2	18.0
Total	28.1	30.0
FEMALES		
Full-time	7.1	29.8
Part-time	0.5	21.0
Total	4.5	25.8
TOTAL		
Full-time	27.5	31.2
Part-time	7.8	20.2
<b>Total</b>	<b>25.2</b>	<b>28.1</b>

Source: *Trade Union Members, Australia* (6325.0).

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# Stadium Australia

(This article has been contributed by Stadium Australia Management Ltd  
<http://www.stadiumaustralia.com.au>)

A record breaking 4.5 billion people around the world are expected to tune in to the Opening Ceremony of the 2000 Games in Sydney. The Sydney Olympics have provided many opportunities, not least to develop one of the most exciting sporting and entertainment venues in the world—Stadium Australia.

The stadium has already drawn record crowds to major football events. Australians' love of sport will ensure that Stadium Australia continues to be the fixture for major sporting, cultural and entertainment events well into the next millennium.

## Some firsts

Stadium Australia features a number of 'firsts' in its facilities:

- With 110,000 seats, Stadium Australia is the largest Olympic stadium in the world. The previous record was held by Los Angeles with 101,000 seats.
- Video screens and scoreboards have been installed at a cost of \$10m. The two video screens are the largest ever constructed for the Olympic Games. Equal to 440 standard television sets and four storeys high, they display more than one million colours.
- For the first time in modern Olympic history, all of the athletes will be living in the Olympic village surrounding the stadium.
- Since March 1999, the stadium has hosted world record crowds for both Rugby League and Rugby Union events. The League 'Double Header', an ambitious project for a new stadium, was attended by 104,000 people just three days after its completion.

## World-class design

The stadium's design makes it one of the largest, most advanced, comfortable and versatile stadia in the world.

Beside its natural beauty, the building is also functional. The pitch of the roof helps focus attention onto the field, enhancing atmosphere within the stadium. The roof affords effective weather protection and good acoustics, while allowing maximum sunlight to reach the playing surface all day.

Designs for the stadium were inspired by the curves of an Australian slouch hat and adapted for the Australian environment.

## Track and turf

Stadium Australia chose the Mondo Sportflex Super X track surface. This solid rubber surface provides a honeycomb structure with one air pocket per square centimetre and millions of individual shock absorbers directly under the running surface.

Penetrating spikes are unnecessary, and new generations of cone and pyramid shaped spikes have been designed to deflect the running surface rather than penetrate it. Body impact is reduced as athletes' feet do not make full contact with the ground. Some 120 world records have been set on Mondo Sportflex Super X since its development.

The reinforced sand/mesh element base of the StrathAyr Turf System provides a safe and consistent surface where there is little variation in wet or dry conditions. The surface caters for extreme levels of use; in conjunction with the use of modules over the running track this allows the field to be used for play immediately after repair. The modules have enabled the stadium to be used already for various football codes.

## Catering for future uses

Although Stadium Australia was purpose-built for the Olympics, its designers have made provision for its future uses, with technology like 'smart seats' incorporated into the design.

From 2001, the stadium will be able to be quickly reconfigured from rectangular to oval shape and vice versa. Once the athletics track is no longer needed, it will be taken out and replaced with flexible seating. This seating (the bottom two sections of the east and west bowl) can be moved hydraulically 15.6 metres forward or backward to form a rectangular playing surface for Rugby League, Rugby Union or Soccer, or an oval for Australian Rules and Cricket.

The retractable seating system can increase the size and change the shape of the playing surface at just eight hours' notice. The stadium could host a Rugby League game on a Saturday and an Australian Rules game on a Sunday.

The north and south ends of the lower bowl will be roofed following the Olympic Games, and provision has been made in the design to accommodate a retractable roof in the future. The low front edge effectively shades and protects spectators, and minimises shadows and patching of direct sunlight onto the playing area. No matter what time of day, lighting conditions will be at their best.

## The 'green' stadium

Stadium Australia has invested in alternative energy sources like solar, wind, hydro and biomass instead of traditional fossil fuels.

As a participant in a 'Green Energy' initiative by Energy Australia, Stadium Australia is the largest single site using green energy in the country. It is estimated that this initiative will prevent the release of more than 13 million tonnes of greenhouse gas into the atmosphere every year.

A responsible attitude to ecologically sustainable development informed the design of the Stadium. For example, when the original residents—a 300 strong colony of green and golden bell frogs—were discovered, development plans were modified to accommodate them.

Other initiatives include:

- life cycle assessments of all building materials to determine their environmental impact;
- minimal use of PVC;
- integration of passive ventilation to minimise the amount of air conditioning required and to save energy;
- a reduced need for artificial lighting, with maximised intake of daylight;
- collection of rainwater for irrigation of the pitch. Other water saving devices minimise the need for potable water. Extra heat created by generators is used to heat water for the stadium;
- environment-friendly, gas fired co-generators for backup to the main supply of electricity maximise the use of renewable energy sources; and
- stored solar energy will light Olympic Boulevard for six hours every night. The large crane-like structures over the walkways outside the entrance to the stadium are solar powered lights.

## Building the stadium

Construction of Stadium Australia started in September 1996 and finished in March 1999. Development to date has cost over \$650m. A massive cut and fill earthworks operation levelled the site, moving 55,000 cubic metres of soil with over 50,000 trucks. Materials used during construction included:

- five drilling rigs to construct 1,800 foundation piles;
- some 18,000 concrete trucks to deliver concrete;
- over 180 kms of electrical cabling; and
- a million masonry blocks. Laid end to end, the blocks would stretch for 400 kms.

Some 900 construction workers were on-site when work was at its peak.

## Hosting the Paralympic Games

Stadium Australia will also host the 2000 Paralympic Games. Over 4,000 athletes from 125 countries will attend the Paralympic Games held 18–29 October 2000.

Facilities for people with disabilities exceed those at any other venue in Australia, and include disabled access to all viewing areas, lifts to all levels and more. Disabled areas are world class. Some 1,000 special seats have also been reserved for people using wheelchairs. These have good sight lines that cannot be blocked by standing spectators.

## Stadium Australia—some facts and figures

The foundation stone, donated by the Greek Ministry of Culture to honour the last Games of the millennium, was quarried just 10 kms from the original, ancient Olympic site at Olympia.

At its highest point the Stadium's arch reaches 14 storeys, and the span from north to south is enough to fit four Boeing 747s side by side. The roof size is equivalent to 115 tennis courts.

Concrete used	90,000 square metres.
Structural steel	12,000 tonnes.
Reinforcing	10,000 tonnes.
Precast seating plates	55,000 metres.
Number of piles	2,600.
Total roof weight	4,100 tonnes.
Roof size	30,000 square metres.
Combined main arch span	295.6 metres.
Roof span at centre	70 metres.
Biggest single crane lift	250 tonnes.
Height of stadium	Front: 43m. Back: 58m.

## Tours

Large numbers of people arrive every day to view Stadium Australia—21 guides have shown as many as 1,600 people a day around the venue.

Patrons come from overseas, all around Australia and Sydney. Many individuals and groups get involved—including politicians, school groups, senior business people, bus groups, conference delegates, and Olympics-related and inbound tourist groups.

## Facilities and services

Stadium Australia provides a very high standard of spectator service. Spectators enjoy an unobstructed view of the action from every seat, as well as ease of access to seats, and excellent food and beverage outlets, toilets and stadium entry and exit points.

There are 86 food and beverage outlets, and a kitchen capable of producing 15,000 meals and serving up to 7,000 plated meals at a time. Over 2,400 catering staff work on days involving major events.

## Corporate facilities and club membership

Like most major sporting and cultural institutions, Stadium Australia has its own Club, offering two levels of membership. Members enjoy benefits like guaranteed seating at many events and VIP hospitality.

Conference facilities for business meetings, product launches and other events are also available. Fully equipped and catered conference and function rooms can accommodate up to 2,000 delegates.

## Media

Information infrastructure is in place to accommodate an in-house media service, including broadcasting and production centres for TV and radio, and a photographer's moat and press centre. Work space has been created for 600 journalists.

## Beyond 2000

A great effort has gone into the building of Stadium Australia, resulting in a world-class main venue for the 2000 Olympics. Its outstanding design, superb facilities and exciting atmosphere ensure that the stadium will be an important sporting venue long into the future.

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## Introduction

The service industries sector is the most significant and fastest growing component of the Australian economy. This chapter presents an overview of the sector and provides a range of statistical information for a selection of service industries, with a particular focus on those that have recently been surveyed as part of the ABS rotating program of service industries collections.

For the purposes of this chapter, the service industries sector has been defined as all industries other than the goods producing industries (agriculture, mining, manufacturing, electricity, construction, and gas and water supply). In terms of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC), the service industries cover the wholesale and retail trade, accommodation, cafes and restaurants, transport and storage, communication services, finance and insurance, property and business services, government administration and defence, education, health and community services, cultural and recreational services, and personal and other services.

## Overview

The service industries sector is the largest component of the Australian economy in terms of number of businesses, employment and gross value added.

Of the estimated 1,046,900 private sector businesses in Australia in 1996–97, some 687,200 or about two-thirds were in the service industries. For small businesses (those with less than 20 employees), the proportions are similar, service industries accounting for 66% of just over one million small businesses in Australia (table 21.1).

In terms of industry output or gross value added, the service industries are dominant, accounting for 68% of the gross value added of all industries in 1997–98. Within the service industries sector, output in chain volume terms (expressed in 1996–97 dollars) increased by 23% in the period from 1992–93 to 1997–98, outstripping output growth in the goods producing sector by four percentage points over the same period. This resulted in a small increase in the share of total output for the service industries, from 67% in 1992–93 to 68% in 1997–98.

The largest contributor to the service industries sector in 1997–98 was the property and business services industry, which accounted for 19% of the gross value added of the service industries sector and 13% of the gross value added of all industries. The next largest, within the service industries sector, was transport and storage services which accounted for 11% of the gross value added of the sector.

In the five year period from 1992–93 to 1997–98, service industries gross value added increased on average by 4.5% per year in real terms. In contrast, the gross value added of the goods producing industries increased by an annual rate of 3.4%.

The communication services industry recorded the largest percentage increase in output in the five year period with an increase of 60% in real terms, the equivalent of an annual growth rate of nearly 10%. The next highest growth rate was recorded by the wholesale trade industry with 42% over the five year period, an annual growth rate of over 7%. The three areas in the service industries sector where growth in real terms was lowest in the period 1992–93 to 1997–98 were education (5%), government administration and defence (11%), and health and community services (16%).

**21.1 NUMBER OF BUSINESSES—1996–97**

Industry	Unit	Small businesses	Other businesses	Total
Goods producing industries	'000	343.7	16.0	<b>359.7</b>
Service industries	'000	660.5	26.7	<b>687.2</b>
Total all industries	'000	1 004.2	42.7	<b>1 046.9</b>
Businesses in service industries as a percentage of all businesses	%	65.8	62.5	<b>65.6</b>

Source: *Small Business in Australia, 1997* (1321.0).

**21.2 GROSS VALUE ADDED(a), Chain Volume Measures(b) by Industry**

	1992-93	1997-98	Increase
	\$m	\$m	%
<b>Goods producing industries</b>			
Agriculture	15 675	16 817	7.3
Mining	18 369	23 769	29.4
Manufacturing	58 339	65 878	12.9
Electricity, gas and water	12 697	14 292	12.6
Construction	22 366	30 003	34.1
<i>Total</i>	<i>127 446</i>	<i>150 759</i>	<i>18.3</i>
<b>Service industries</b>			
Wholesale trade	21 586	30 727	42.3
Retail trade	25 382	30 793	21.3
Accommodation, cafes and restaurants	9 355	11 321	21.0
Transport and storage	27 039	33 464	23.8
Communication services	9 818	15 665	59.6
Finance and insurance	25 277	32 397	28.2
Property and business services	45 103	59 671	32.3
Government administration and defence	20 820	23 176	11.3
Education	22 765	23 791	4.5
Health and community services	27 457	31 713	15.5
Cultural and recreational services	8 072	9 932	23.0
Personal and other services	9 901	12 102	22.2
<i>Total</i>	<i>252 575</i>	<i>314 752</i>	<i>24.6</i>
<b>Total all industries(c)</b>	<b>380 021</b>	<b>465 511</b>	<b>22.5</b>
	%	%	
Service industries as a percentage of all industries	66.5	67.6	. .

(a) At basic prices, which include subsidies but are before any taxes on products. (b) Reference year for chain volume measures is 1996-97. (c) Excludes ownership of dwellings.

Source: Australian National Accounts: National Income, Expenditure and Product (5206.0).

As table 21.3 shows, in terms of employment the service industries sector is even more dominant, accounting for 73% of employment in 1997-98, a small rise from 71% in 1992-93. Total employment in the service industries sector in 1997-98 was 6,165,100 persons.

In the five year period since 1992-93, employment in the service industries increased by 772,100 persons or 14.3%, representing an annual growth rate of 2.7%. The goods producing industries recorded an increase in employment of only 88,300 persons which represents an increase of 4% over the five year period, an annual growth rate of just under 0.8%.

Within the service industries, the major employing industry was retail trade with employment in 1997-98 of 1,244,000 persons,

which accounted for almost 15% of all employment. Other large employing service industries were property and business services (897,100 persons), health and community services (799,400 persons), and wholesale trade (500,000 persons). The industries showing the greatest employment growth in the five year period since 1992-93 were property and business services, a 46% increase from 615,800 persons to 897,100 persons, cultural and recreational services with an increase of 32% in the period, and communication services with an increase of 21%. In contrast, employment in the government administration and defence sector fell by almost 7% over the same period, and finance and insurance declined by 1.5%. Employment in the wholesale trade industry increased by only 2.7%.

**21.3 EMPLOYED PERSONS, By Industry**

	1992–93(a)	1997–98(a)	Increase
	'000 persons	'000 persons	%
Goods producing industries			
Agriculture	404.1	430.8	6.6
Mining	86.8	82.7	–4.6
Manufacturing	1 086.5	1 121.2	3.2
Electricity, gas and water	97.6	64.4	–34.0
Construction	533.1	597.1	12.0
Total	2 208.0	2 296.3	4.0
Service industries			
Wholesale trade	486.9	500.0	2.7
Retail trade	1 104.1	1 244.0	12.7
Accommodation, cafes and restaurants	336.1	402.9	19.9
Transport and storage	358.0	394.3	10.1
Communication services	123.3	148.7	20.6
Finance and insurance	318.2	313.3	–1.5
Property and business services	615.8	897.1	45.7
Government administration and defence	364.3	339.3	–6.9
Education	548.0	583.4	6.5
Health and community services	688.7	799.4	16.1
Cultural and recreational services	154.7	203.4	31.5
Personal and other services	295.1	339.5	15.0
Total	5 393.0	6 165.1	14.3
<b>Total all industries</b>	<b>7 601.0</b>	<b>8 461.3</b>	<b>11.3</b>
	%	%	
Service industries as a percentage of all industries	71.0	72.9	..

(a) Annual average.

Source: Labour Force, Australia (6203.0).

## Statistics for selected service industries

Presented below are statistics for a selection of service industries. The information provided is sourced primarily from the rotating program of service industries collections conducted by the ABS. The exceptions are the retail trade and wholesale trade industries where information has been sourced from the monthly and quarterly sales collections respectively.

### Retail trade

The retail trade industry comprises businesses primarily engaged in the resale of new or used goods to final consumers for personal or household consumption, or in selected repair activities such as repair of household equipment or motor vehicles.

Retail turnover is an important current economic indicator and a guide to consumer confidence. Turnover estimates for the retail trade industry are used to monitor changes in consumer buying patterns. As graph 21.4 shows, in volume terms retail turnover grew by 3.3% in 1997–98. In

1996–97 growth was virtually zero, while growth of 4.1% was recorded in 1995–96. In the period 1988–89 to 1997–98, growth in retail turnover was strongest in 1994–95, with 5.4%.

Table 21.5 presents annual chain volume estimates of turnover (in 1997–98 dollars) by retail industry group. Increases in volume terms were recorded during 1997–98 by each of the industry groups, ranging from 8.7% for the Other retailing group down to 0.8% for the Household good retailing group.

The Food retailing industry group constitutes the largest component of retail trade, accounting for 39.7% of total retail turnover in 1987–88, and 40.6% in 1997–98. The 30.5% growth in turnover of the food retailing industry in the period from 1987–88 to 1997–98 was slightly stronger than the overall growth in retailing of 27.5%. Over the decade, growth was strongest in the Other retailing industry group (78.2%) and the Household good retailing group (43.4%). The weakest growth over this period was in Clothing and soft good retailing industry which increased by only 5.9%.



**21.4 ANNUAL CHANGE IN RETAIL TURNOVER—1988-89 to 1997-98**



Source: Unpublished data, Retail Trade.

**21.5 RETAIL TURNOVER, Chain Volume Estimates(a) by Industry**

Year	Food retailing \$m	Department stores \$m	Clothing and softgood retailing \$m	Household good retailing \$m	Recreational good retailing \$m	Other retailing \$m	Hospitality and services \$m	Total(b) \$m
1987-88	41 858	10 800	8 276	10 734	5 985	7 747	20 245	<b>105 532</b>
1988-89	42 122	10 772	8 478	11 295	6 199	8 698	20 626	<b>108 250</b>
1989-90	43 670	10 837	8 205	11 613	6 666	9 371	21 443	<b>111 739</b>
1990-91	44 642	10 430	8 154	11 194	6 400	9 483	21 023	<b>111 122</b>
1991-92	46 576	10 801	8 523	11 568	6 541	9 998	20 294	<b>114 145</b>
1992-93	46 928	10 962	8 263	12 316	6 375	10 172	19 851	<b>114 816</b>
1993-94	47 553	11 043	8 319	13 193	6 696	11 119	20 839	<b>118 775</b>
1994-95	50 272	11 164	8 476	13 859	7 133	11 627	22 735	<b>125 194</b>
1995-96	52 464	11 699	8 681	14 510	7 683	12 285	23 095	<b>130 364</b>
1996-97	52 819	11 628	8 525	15 271	7 402	12 693	21 913	<b>130 251</b>
1997-98	54 616	11 962	8 764	15 388	7 621	13 802	22 428	<b>134 582</b>

(a) The reference year for chain volume measures is 1997-98. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: Unpublished data, Retail Trade.

A comparison of the shares of total retailing held by the industry groups shows that the Food, Household good and Other retailing groups increased their shares over the period. Industries to show a decrease in their shares were Department stores, the Clothing and softgood retailing, and the Hospitality and selected other services groups. The Recreational good retailing group's share remained unchanged.

## Wholesale trade

The wholesale trade industry covers those businesses involved in the resale of new or used goods to businesses or to institutional (including government) users.

Along with the retail trade industry, the wholesale trade industry is a significant component of the Australian economy and provides a key indicator of

economic activity. Table 21.6 presents annual chain volume estimates of wholesale sales (in 1996-97 dollars) by industry since 1994-95. In volume terms, wholesale sales in 1997-98 increased by 10.0% over 1996-97 sales. This followed increases of 3.7% in 1996-97 and 1.6% in 1995-96.

Machinery and motor vehicle wholesaling was the largest component of the wholesale trade industry, accounting for 38.5% of total wholesale sales in 1997-98. In the period 1994-95 to 1997-98, sales of the basic material wholesaling industry increased by 20.3%, while sales of the personal and household good wholesaling industry fell by 2.0%. This was in spite of a 5.2% increase in wholesale sales of that industry in 1997-98 over 1996-97.

**21.6 WHOLESALE SALES, Chain Volume Estimates(a) by Industry**

	Basic material wholesaling	Machinery and motor vehicle wholesaling	Personal and household good wholesaling	Total (b)
	\$m	\$m	\$m	\$m
1994–95	47 926	60 358	56 356	<b>158 576</b>
1995–96	47 302	59 858	54 002	<b>161 149</b>
1996–97	50 099	64 444	52 518	<b>167 061</b>
1997–98	57 672	70 833	55 255	<b>183 760</b>

(a) Reference year for chain volume measures is 1996–97. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Unpublished data, Inventories and Sales, Selected Industries, Australia* (5629.0).

**Accommodation**

The accommodation industry, an important part of the tourism and hospitality sector, consists of hotels, motels, caravan parks and similar businesses mainly engaged in providing short term accommodation. It excludes those hotels that provide short term accommodation, but whose main activity is selling alcoholic beverages for consumption on the premises.

At 30 June 1998, there were 6,143 businesses in the accommodation industry. This represented a 16% increase over the number at June 1996. These businesses employed a total of 97,201 at 30 June 1998, an increase of 20% since June 1996.

Females accounted for almost 59% of total employment within the industry.

As table 21.7 shows, the total income of the industry in 1997–98 was \$6,763m, with takings from accommodation accounting for the majority (61%) of this total. Other significant income items included takings from meals (17%) and sales of liquor and other beverages (8%). Labour costs (\$2,035m) accounted for just over 32% of total expenses (\$6,269m), making it the most significant expense item. The resulting operating profit before tax in 1997–98 was \$502m, representing an operating profit margin for the period of 7.8%, the same as for 1995–96.

**21.7 ACCOMMODATION INDUSTRY**

	1995–96	1997–98	Increase
	no.	no.	%
Businesses at 30 June	5 288	6 143	16.2
	persons	persons	%
Employment at 30 June	81 086	97 201	19.9
	\$m	\$m	%
Income			
Takings from accommodation	3 253	4 141	27.3
Other income	2 006	2 621	30.6
Total income	5 259	6 763	28.6
Expenses			
Labour costs	1 592	2 035	27.8
Other expenses	3 265	4 234	29.7
Total expenses	4 857	6 269	29.1
Operating profit before tax	401	502	25.2
	%	%	
Operating profit margin	7.8	7.8	. .

Source: *Accommodation Industry, Australia 1997–98* (8695.0).

## Clubs, pubs, taverns and bars

Along with the accommodation industry, the clubs, pubs, taverns and bars industries are important elements of the tourism and hospitality sector. The clubs industry covers businesses mainly engaged in the provision of hospitality services to members, while the pubs, taverns and bars industry covers businesses which mainly sell alcoholic beverages for consumption on the premises.

At the end of June 1998, there were 8,541 businesses in the clubs, pubs, taverns and bars industries combined, employing 148,996 persons (table 21.8). During 1997–98, the total income of the clubs, pubs, taverns and bars industries was \$14,266m, an increase of 28% over 1994–95. After expenses, the combined operating profit before tax for these industries was \$1,242m, representing an operating profit margin of 8.8%.

At 30 June 1998, there were 3,749 businesses in the clubs industry, a 14% increase in the three years since June 1995. Employment increased by almost 8% in the same period, to 67,272 persons at 30 June 1998. The majority (56%) of employees worked on a casual basis.

The provision of gambling services is an important aspect of the clubs industry; 53% of the total income of the industry in 1997–98 was attributable to gambling. The clubs industry generated total income of \$6,013m in 1997–98 (an increase of 27% since 1994–95); after expenses this resulted in an operating profit before tax of \$561m. The operating profit margin for the clubs industry was 9.4%, clubs with gambling facilities having a higher operating profit margin (9.6%) than clubs without gambling facilities (7.1%).

There were 4,792 businesses in the pubs, taverns and bars industry at 30 June 1998, an 11% increase since June 1995. In the three years from June 1995, employment in the industry increased by 14% to 81,724 persons at 30 June 1998. As in the clubs industry, most employment (65%) in the pubs, taverns and bars industry was on a casual basis.

The increasing influence of gambling activity in the pubs, taverns and bars industry was reflected in the 130% increase in gambling income in the period 1994–95 to 1997–98. Businesses in the

industry generated gambling income of \$1,326m in 1997–98. Despite this growth, sales of liquor and other beverages (\$5,848m) were still the major source of income. After expenses, operating profit before tax in the industry was \$681m. In terms of operating profit margin, pubs, taverns and bars with gambling facilities outperformed those without gambling facilities (8.9% compared to 5.7%) in 1997–98. The overall operating profit margin for the industry was 8.3%, up significantly on 4.1% in 1994–95.

## Gambling services

The ABS conducted its second survey of the gambling services industries in respect of 1997–98. The industries include businesses mainly engaged in lotteries and lotto operations, casino operations and other gambling services such as totalisator and bookmaker operations, but not the gambling services provided by clubs, pubs, taverns and bars, which accounted for about 41% of net takings from gambling in 1997–98 (see previous section).

As table 21.9 shows, there were 1,776 businesses in the gambling services industries at 30 June 1998, a decrease of 13% since the end of June 1995. However, employment increased from 32,062 to 37,035 persons in the same period, most of this increase being attributable to casinos, which increased employment by 4,694 persons during the period.

The industry generated total income of \$7,935m in 1997–98. The major contributor was net takings from gambling, which increased by 37% over 1994–95, to \$7,086m (89% of total income). Total income for the casinos industry grew by 64% in the period 1994–95 to 1997–98, a much higher rate than for lotteries (25%) and other gambling services (28%). Nevertheless, in terms of operating profit margin the lotteries and other gambling services industries (8.6% and 18.4% respectively) outperformed casinos (–10.8%). This was partly due to the very high abnormal expenses incurred by casinos in 1997–98.

Total expenses in 1997–98 for the gambling services industry was \$7,518m; the major expense item was gambling/gaming taxes and levies, which accounted for just over 35% of total expenses.

See also the article *Gambling in Australia* at the end of this chapter.

**21.8 CLUBS (HOSPITALITY) AND PUBS, TAVERNS AND BARS INDUSTRIES**

	1994–95	1997–98	Increase
CLUBS (HOSPITALITY)			
	no.	no.	%
Businesses at 30 June	3 284	3 749	14.2
	persons	persons	%
Employment at 30 June	62 536	67 272	7.6
	\$m	\$m	%
Income			
Sales of meals and alcohol and other beverages	1 729.8	2 111.1	22.0
Takings from gambling	2 355.4	3 207.6	36.2
<i>Total income</i>	4 729.4	6 012.5	27.1
Operating profit before tax	429.1	561.0	30.7
	%	%	
Operating profit margin	9.2	9.4	..
PUBS, TAVERNS AND BARS			
	no.	no.	%
Businesses at 30 June	4 325	4 792	10.8
	persons	persons	%
Employment at 30 June	71 437	81 724	14.4
	\$m	\$m	%
Income			
Sales of meals and alcohol and other beverages	5 278.2	6 530.1	23.7
Takings from gambling	576.1	1 325.6	130.1
<i>Total income</i>	6,390.1	8,253.3	29.2
Operating profit before tax	258.2	681.1	163.8
	%	%	
Operating profit margin	4.1	8.3	..
CLUBS (HOSPITALITY) AND PUBS, TAVERNS AND BARS			
	no.	no.	%
Businesses at 30 June	7 609	8 541	12.2
	persons	persons	%
Employment at 30 June	133 973	148 996	11.2
	\$m	\$m	%
Income			
Sales of meals and alcohol and other beverages	7 008.1	8 641.3	23.3
Takings from gambling	2 931.4	4 533.1	54.6
<i>Total income</i>	11 119.5	14 265.8	28.3
Operating profit before tax	687.3	1242.1	80.7
	%	%	
Operating profit margin	6.2	8.8	..

Source: *Clubs, Pubs, Taverns and Bars, Australia, 1997–98* (8687.0).

## 21.9 GAMBLING SERVICES INDUSTRIES

	Unit	Lotteries	Casinos	Other gambling services	Total
Businesses at 30 June					
1994-95	no.	178	14	1 849	<b>2 041</b>
1997-98	no.	134	13	1 629	<b>1 776</b>
Change	%	-24.7	-7.1	-11.9	<b>-13.0</b>
Employment at 30 June					
1994-95	no.	2 006	15 837	14 219	<b>32 062</b>
1997-98	no.	2 782	20 531	13 722	<b>37 035</b>
Change	%	38.7	29.6	-3.5	<b>15.5</b>
Net takings from gambling					
1994-95	\$m	1 885.1	1 381.8	1 909.5	<b>5 176.4</b>
1997-98	\$m	2 440.3	2 165.1	2 480.8	<b>7 086.2</b>
Change	%	29.5	56.7	29.9	<b>36.9</b>
Commissions from gambling					
1994-95	\$m	19.9	0.9	85.2	<b>106.0</b>
1997-98	\$m	17.0	1.5	99.4	<b>117.9</b>
Change	%	-14.5	66.7	16.7	<b>11.2</b>
Total income (net of payouts to players)					
1994-95	\$m	2 039.9	1 650.5	2 093.9	<b>5 784.3</b>
1997-98	\$m	2 545.1	2 709.7	2 680.5	<b>7 935.3</b>
Change	%	24.8	64.2	28.0	<b>37.2</b>
Operating profit before tax					
1994-95	\$m	250.2	107.4	405.4	<b>762.9</b>
1997-98	\$m	217.2	-287.9	489.7	<b>419.0</b>
Change	%	-13.2	-368.2	20.8	<b>-45.1</b>
Operating profit margin					
1994-95	%	12.5	6.5	19.6	<b>13.4</b>
1997-98	%	8.6	-10.8	18.4	<b>5.3</b>

Source: Gambling Industries, Australia, 1997-98 (8684.0).

## Real estate agents

The real estate agents industry covers businesses mainly engaged in valuing, purchasing, selling (by auction or private treaty), managing or renting real estate on behalf of other people. The most recent survey of the industry was in respect of 1995-96.

There were 8,082 businesses in the real estate agents industry at 30 June 1996 (table 21.10). This represented an increase of 11% in the three year period since June 1993. There were 45,956 persons employed in the industry at 30 June 1996. Full-time employment accounted for 85% while the remainder worked part-time. Employment in the industry at 30 June 1996 represented a 12% increase since June 1993, with full-time employment increasing by 13% while part-time employment increased by only 7%.

There were a further 9,830 persons working in the industry at 30 June 1996 on a commission only basis. The number of staff working on this

basis declined by 11% since June 1993, when there were 10,978 persons working on commission only.

Total income of the industry in 1995-96 was \$3,370m, an increase of 19% since 1992-93. Income from sales and leasing commissions from property (60%) and income from property management fees (26%) were the major components of total income. After expenses, the industry had an operating profit before tax of \$275m. This represented an operating profit margin of 8.3%, which was slightly higher than the operating profit margin (7.7%) recorded in 1992-93.

Businesses in the real estate agents industry were concentrated in four States. In 1995-96, New South Wales accounted for 35% of total income, while Victoria (20%), Queensland (19%) and Western Australia (14%) were also major contributors. Western Australia accounted for only 10% of the Australian population, but 15% of total employment within the industry and 14% of its total income.

**21.10 REAL ESTATE AGENTS INDUSTRY**

	1992–93	1995–96	Increase
	no.	no.	%
Businesses at 30 June	7 265	8 082	11.2
	persons	persons	%
Employment at 30 June			
Full-time	34 340	38 898	13.3
Part-time	6 604	7 057	6.9
Total employment	40 945	45 956	12.2
Staff working solely on commission	10 978	9 830	–10.5
	\$m	\$m	%
Total income	2 842.8	3 369.6	18.5
Operating profit before tax	216.0	275.4	27.5
	%	%	
Operating profit margin	7.7	8.3	. .

Source: Real Estate Agents Industry, Australia, 1995–96 (8663.0).

**21.11 ACCOUNTING SERVICES INDUSTRY**

	1992–93	1995–96	Increase
	no.	no.	%
Businesses	8 699	8 389	–3.6
	persons	persons	%
Employment			
Principals	14 143	15 409	9.0
Qualified employees	18 277	22 207	21.5
Other employees	27 580	29 175	5.8
Total employment	60 000	66 792	11.3
	\$m	\$m	%
Total income	4 086.4	4 939.1	20.9
Operating profit before tax	828.6	954.6	15.2
	%	%	
Operating profit margin	20.5	19.4	. .

Source: Legal and Accounting Services, Australia, 1995–96 (8678.0).

**Accounting services**

At 30 June 1996, there were 8,389 businesses in the accounting services industry. Most accounting businesses were small, 95% employing fewer than 20 employees. There were 18 businesses employing 100 or more persons, less than 1% of total businesses, which accounted for significant proportions of total employment (26%) and total income (39%).

There were 66,792 persons employed in the accounting services industry at the end of June 1996. The majority (83%) of employment was on a full-time basis. Females accounted for 51% of total employment in the industry. While females comprised 76% of support staff, they were only 17% of working principals and 41% of accountants working as employees.

As shown in table 21.11, during 1995–96 the accounting services industry generated \$4,939m in total income, an average of \$588,800 per business. After expenses, the industry recorded an operating profit before tax of \$955m, representing an operating profit margin of 19.4%, slightly less than in 1992–93.

Income from accounting services (\$4,407m) contributed 89% of total income in 1995–96. As shown in table 21.12, taxation services (36%) generated the largest proportion of income from accounting services, followed by general business and personal accounting services (30%) and auditing services (20%).

**21.12 INCOME FROM ACCOUNTING SERVICES—1995–96**

	Value	Contribution to total
Type of accounting service	\$m	%
Auditing	895.9	20.3
General business and personal accounting	1 311.6	29.8
Insolvency, reconstruction	236.3	5.4
Investment financial planning advice	167.1	3.8
Taxation	1 574.6	35.7
Other accounting services	221.7	5.0
<b>Total</b>	<b>4 407.2</b>	<b>100.0</b>

Source: Legal and Accounting Services, Australia, 1995–96 (8678.0).

**Legal services**

As shown in table 21.13, there were 9,796 legal services businesses at 30 June 1996, an increase of 946 over the number at June 1993; solicitor businesses increased by 15% to 6,403 and barrister businesses by 5% to 3,350. In terms of total employment, the great majority (95%) of barrister and solicitor businesses were small, employing less than 20 people.

There were 67,494 people employed in the industry at 30 June 1996. The most significant increase in employment since June 1993 occurred in qualified employees, this category increasing by 28%. In contrast, the increase in support staff during the same period was just 3%. Females accounted for 60% of employment and 83% of part-time employment in the industry as at 30 June 1996, but accounted for only 16% of working principals and 41% of barristers and solicitors.

Barrister and solicitor businesses generated \$5,591m in income in 1995–96, an increase of 8.7% since 1992–93. In 1995–96 the industry recorded an operating profit before tax of \$1,750m, representing an operating profit margin of 31.5%, slightly less than in 1992–93.

### 21.13 LEGAL SERVICES INDUSTRY

	1992–93	1995–96	Increase
	no.	no.	%
Businesses at 30 June			
Solicitors	5 579	6 403	14.8
Barristers	3 184	3 350	5.2
Other	87	43	-50.6
Total businesses	8 850	9 796	10.7
	persons	persons	%
Employment at 30 June			
Principals	15 606	16 417	5.2
Qualified employees	9 059	11 554	27.5
Other employees	38 442	39 523	2.8
Total employment	63 108	67 494	6.9
	\$m	\$m	%
Total income	5 144.0	5 590.9	8.7
Operating profit before tax	1 655.5	1 750.4	5.7
	%	%	
Operating profit margin	32.6	31.5	..

Source: *Legal and Accounting Services, Australia, 1995–96* (8678.0).

Income from legal services of \$5,256m accounted for 94% of total income in 1995–96. As shown in table 21.14, commercial, finance and business services were the main source of income, accounting for 34% of income from legal services. The other major source was property conveyancing, which accounted for 13% of income from legal services.

### 21.14 INCOME FROM LEGAL SERVICES—1995–96

	Value	Contribution to total
Type of legal service	\$m	%
Property conveyancing	686.3	13.1
Other property work	346.4	6.6
Wills, probate and estate activities	222.5	4.2
Commercial, finance and business	1 784.7	34.0
Family	318.9	6.1
Criminal	179.0	3.4
Environmental	98.5	1.9
Industrial relations	134.1	2.6
Motor vehicle injury	311.8	5.9
Workers' compensation	358.4	6.8
Other personal injury	226.7	4.3
Other fields	588.5	11.2
<b>Total</b>	<b>5 255.8</b>	<b>100.0</b>

Source: *Legal and Accounting Services, Australia, 1995–96* (8678.0).

### Consultant engineering services

The ABS conducted a survey of the consultant engineering services industry for 1995–96, to update the results of a survey in respect of 1992–93. There were 5,514 businesses in the industry at 30 June 1996 (table 21.15). This represented an increase of only 1% in the three year period since June 1993.

The consultant engineering services industry employed a total of 30,736 persons at 30 June 1996. Full-time employment accounted for 83% (25,384 persons). Employment in the industry at 30 June 1996 represented a 9% increase since June 1993. In addition to 30,736 employed persons, a further 8,212 persons were working on a contract or agency basis in the industry at 30 June 1996. The number of staff working on this basis more than doubled since June 1993, when there were 3,954 contract and agency staff. Overall 38,948 persons were working in the industry at 30 June 1996, an increase of 21% since June 1993.

The 5,514 businesses operating at 30 June 1996 generated total income of \$3,233m and had expenses of \$2,736m. The main sources of income were civil engineering (\$505m), mining and geotechnical engineering services (\$463m), and building/structural engineering services (\$391m). The main items of expense were labour costs and payments to contractors and agency staff, which together accounted for 64% of all expenses in 1995–96.



The consultant engineering services industry recorded an operating profit before tax of \$351m for the 1995–96 financial year, which represented an operating profit margin of 11.0%. This was a significant increase on the profit margin (6.7%) recorded in 1992–93.

Businesses in the consultant engineering services industry were concentrated in four States. Businesses operating in New South Wales accounted for 28% of total income, while Victoria (29%), Queensland (18%), and Western Australia (18%) were the other significant contributors.

### 21.15 CONSULTANT ENGINEERING SERVICES INDUSTRY

	1992–93	1995–96	Increase
	no.	no.	%
Businesses at 30 June	5,454	5,514	1.1
	persons	persons	%
Employment at 30 June			
Full-time	23,244	25,384	9.2
Part-time	4,964	5,352	7.8
Total employment	28,208	30,736	9.0
Contract and agency staff	3,954	8,212	107.7
	\$m	\$m	%
Total income	2,358	3,233	37.1
Expenses			
Labour costs	971	1,242	27.9
Payments to contract and agency staff	449	499	11.1
Other expenses	782	996	27.3
Total expenses	2,202	2,736	24.3
Operating profit before tax	156	351	125.4
	%	%	—
Operating profit margin	6.7	11.0	..

Source: *Consultant Engineering Services, Australia 1995–96* (8693.0).

### Waste management services

The ABS conducted its first survey of the waste management services industry in respect of 1996–97. The industry includes businesses mainly engaged in the collection, transport and/or disposal of refuse (except through the sewerage system). In addition, the waste management activities of general government organisations (mostly local government authorities) were included in the survey.

There were 1,727 businesses and organisations involved in providing waste management services at 30 June 1997, consisting of 1,023 private businesses and public non-financial corporations and 704 general government organisations (table 21.16). The private businesses and public non-financial corporations employed 9,956 persons at 30 June 1997, 83% of whom worked full-time. The general government organisations employed 4,891 persons on waste management activities.

Private businesses and public non-financial corporations in the waste management services industry generated total income of \$1,493m in 1996–97. The major source of income was the collection and transport of waste (\$876m). The general government organisations generated \$203m in income from waste management activities in 1996–97. After expenses, private businesses and public non-financial corporations in the industry recorded an operating profit before tax of \$142m (representing an operating profit margin of 9.6%).

In 1996–97, 21.2m tonnes of solid waste were received and disposed of at landfills. This amount comprised 10.8 million tonnes at privately operated landfills and 10.5 million tonnes at landfills operated by general government organisations. A further 1.5 million tonnes of recyclables were owned and sold by waste management businesses and organisations in 1996–97. In terms of tonnage, paper and cardboard (0.4 million tonnes) and concrete (0.4 million tonnes) were the major items recycled.



**21.16 WASTE MANAGEMENT SERVICES INDUSTRY—1996–97**

	Units	Private businesses and public trading enterprises	General government organisations
Businesses/organisations at 30 June	no.	1 023	704
Employment at 30 June	persons	9 956	4 891
Income			
Collection and transport of waste	\$m	875.9	44.6
Treatment/processing/disposal of waste	\$m	379.9	134.3
Other income	\$m	236.7	24.1
<i>Total income</i>	<i>\$m</i>	<i>1 492.5</i>	<i>203.0</i>
Expenses			
Labour costs	\$m	368.9	176.8
Contract and subcontract expenses for waste management services	\$m	144.0	420.1
Fees for the treatment of disposal of waste	\$m	166.7	74.4
Waste disposal levies/contributions paid directly to EPA	\$m	36.4	10.3
Other expenses	\$m	634.5	151.4
<i>Total expenses</i>	<i>\$m</i>	<i>1 350.5</i>	<i>833.0</i>
Operating profit before tax	\$m	142.0	..
Operating profit margin	%	9.6	..
Quantity of waste received and disposed of at landfills			
Solid waste	'000 tonnes	10 757.0	10 463.5
Sludge and liquid waste	'000 tonnes	35.8	5 474.0
<i>Total</i>	<i>'000 tonnes</i>	<i>10 792.8</i>	<i>15 937.5</i>

Source: Waste Management Industry, Australia, 1996–97 (8698.0).

## Computing services

The computing services industry consists of businesses mainly involved in providing services such as data processing, information storage and retrieval, computer maintenance, computer consultancy, and other computing services. The ABS conducted a survey of the computing services industry for 1995–96, the first survey of the industry since 1992–93. In the intervening three years, the industry grew significantly, as shown in table 21.17.

In the three years since June 1993, the number of businesses in the industry nearly doubled, from 4,894 businesses at 30 June 1993 to 9,679 at 30 June 1996. Similarly, employment in the industry increased significantly (by 83%), with employment at 30 June 1996 of 55,046 persons.

Total income of the industry in the financial year 1995–96 was \$8,088m, an increase of 97% on that recorded in 1992–93. The major component was income from computing services, which accounted for 78% of all income. Income from hardware sales accounted for 13% of total income. The relative contributions by income component recorded for 1995–96 were similar to those for 1992–93.

In spite of the large growth in total income, the operating profit before tax of the industry for 1995–96, at \$455m, was only 25% higher than that recorded for 1992–93. This small growth in operating profit before tax, relative to the large growth in income, resulted in a significant decline in the industry's operating profit margin, from 9.3% in 1992–93 to 5.7% in 1995–96. The increase in total income was matched by a 104% increase in total expenses, from \$3,749m in 1992–93 to \$7,642m in 1995–96.

The computing services industry was concentrated in New South Wales and Victoria, which together accounted for 77% of total employment and 81% of total income in 1995–96. The New South Wales share of total income fell from 54% in 1992–93 to 50% in 1995–96, while Victoria's share increased from 27% to 31% over the period. Both States' shares of employment and income were well above their shares of the Australian population in 1995–96 (34% and 25% respectively). In contrast, businesses in Western Australia operating in the computer services industry accounted for only 6% of total industry employment and 5% of income, well below that State's share of the Australian population (10%). Similarly, businesses operating in South Australia, which accounts for 8% of the population, generated only 4% of employment and income.

**21.17 COMPUTING SERVICES INDUSTRY**

	1992–93	1995–96	Increase
	no.	no.	%
Businesses at 30 June	4,894	9,679	97.8
	persons	persons	%
Employment at 30 June			
Full-time	26,017	48,123	85.0
Part-time	4,039	6,922	71.4
Total employment	30,056	55,046	83.1
	\$m	\$m	%
Income			
Income from computing services	3,176	6,324	99.1
Income from communication services	96	148	54.9
Income from hardware sales	505	1,048	107.5
Other income	324	569	75.6
Total income	4,100	8,088	97.3
Operating profit before tax	365	455	24.7
	%	%	
Operating profit margin	9.3	5.7	. .

Source: *Computing Services Industry, Australia, 1995–96* (8669.0).

**Private medical practice**

The ABS conducted its first survey of the private medical practice industry in respect of 1994–95. At 30 June 1995, there were 22,298 businesses in the industry, with slightly more general practice medical businesses than specialist medical businesses.

The businesses in the industry employed 106,134 persons at 30 June 1995, including 33,987 medical practitioners, 7,446 nurses and 44,104 support staff (table 21.18). The incidence of full-time and part-time employment varied significantly by broad occupation category. A large proportion (70%) of medical practitioners worked full-time, while only 41% of administrative/support staff and 38% of nurses were employed on a full-time basis.

The private medical practice industry generated gross income of \$7,241m in 1994–95, specialist medical businesses accounting for 61% (\$4,405m) of the total. Fee for medical service was the major income item, accounting for \$6,562m or 91% of total income. Expenses for the industry totalled \$5,391m, of which wages and salaries paid (\$2,649m) was the largest component (49%). Wages and salaries paid to medical practitioners totalled \$1,367m.

After allowance for expenses, the operating profit before tax of medical practice businesses was \$1,850m, specialist medical businesses accounting for the bigger share (58%). The operating profit margin of the industry was 25.8%.

**21.18 PRIVATE MEDICAL PRACTICE INDUSTRY—1994–95**

	Unit	General practice medical businesses	Specialist medical businesses	Total
Businesses at 30 June	no.	11 933	10 364	22 298
Employment at 30 June				
Medical practitioners	persons	20 825	13 161	33 987
Other	persons	33 831	38 316	72 147
Total employment	persons	54 657	51 477	106 134
Gross income	\$m	2 836.3	4 404.6	7 240.9
Expenses				
Wages and salaries				
Medical practitioners	\$m	611.3	755.9	1 367.2
Other	\$m	502.6	779.5	1 282.2
Total wages and salaries	\$m	1 113.9	1 535.5	2 649.4
Other expenses	\$m	944.2	1 797.0	2 741.2
Total expenses	\$m	2 058.1	3 332.5	5 390.6
Operating profit before tax	\$m	778.2	1 072.1	1 850.3
Operating profit margin	%	27.6	24.6	25.8

Source: *Private Medical Practice Industry, Australia, 1994–95* (8685.0).

## Audiology and audiometry services

The ABS conducted its first survey of the audiology and audiometry industry in respect of 1997–98. This industry includes businesses mainly engaged in providing audiology and audiometry services such as hearing assessment and the sale and fitting of hearing instruments.

As shown in table 21.19, at 30 June 1998 there were 146 audiology and audiometry businesses in Australia, operating from 985 locations (362 of which were located in capital cities). These businesses employed a total of 1,367 persons at 30 June 1998, and generated total income of \$158m in 1997–98. Fee for service income of \$127m represented 81% of total income, \$72m of which was in the form of payments from the Office of Hearing Services.

In 1997–98, the audiology and audiometry industry had an operating profit before tax of just under \$1m, which represented an operating profit margin of 0.7%.

### 21.19 AUDIOLOGY AND AUDIOMETRY SERVICES INDUSTRY—1997–98

	Unit	Value
Businesses at 30 June	no.	146
Private practice locations at 30 June		
Capital city	no.	362
Other	no.	623
Total locations	no.	985
Employment at 30 June		
Audiologists	persons	503
Audiometrists	persons	162
Other	persons	702
Total employment	persons	1367
Income		
Fee for service	\$m	127.4
Other income	\$m	30.6
Total income	\$m	157.9
Expenses		
Labour costs	\$m	56.8
Purchases of hearing instruments	\$m	55.1
Other expenses	\$m	45.1
Total expenses	\$m	156.9
Operating profit before tax	\$m	0.9
Operating profit margin	%	0.7

Source: *Audiology and Audiometry Services, Australia, 1997–98 (8554.0)*.

Table 21.20 shows that audiology and audiometry businesses provided a range of services during 1997–98, including the fitting and post-fitting of hearing instruments (140 businesses), sale of hearing instruments (135 businesses) and consultation and diagnostic work

(134 businesses). Only 49% of audiology and audiometry businesses were involved in the provision of workplace assessment services.

### 21.20 AUDIOLOGY AND AUDIOMETRY ACTIVITIES, By Number and Proportion of Businesses—1997–98

	Total	Proportion of businesses undertaking activity
	no.	%
Consultation and diagnostic work	134	91.8
Fitting and post-fitting of hearing instruments	140	95.9
Sale of hearing instruments	135	92.5
Sale of assistive listening devices	111	76.0
Repair and maintenance of hearing instruments	128	87.7
Hearing rehabilitation and counselling	126	86.3
Workplace assessments	72	49.3
<b>All businesses(a)</b>	<b>146</b>	<b>100.0</b>

(a) Businesses are counted once for each activity in which they are involved. Hence the counts of businesses by type of activity do not sum to the total.

Source: *Audiology and Audiometry Services, Australia, 1997–98 (8554.0)*.

## Community services

The ABS conducted its first comprehensive survey of the community services industry in respect of 1995–96. The survey covered businesses/organisations mainly involved in the provision of child care services, accommodation for the aged, other residential care services, non-residential care services and nursing homes.

At 30 June 1996, there were 7,207 businesses and organisations in the community services industry. Of these, 70% were 'not for profit' organisations (i.e. businesses whose status does not permit them to be a source of income, profit or financial gain for the entities which establish, control or finance them). The 2,115 'for profit' organisations were mainly concentrated in the child care industry (61%) and nursing homes (25%).

As shown in table 21.21, the industry employed 248,953 persons at 30 June 1996. The majority (68%) of these were employed on a part-time basis. The proportion of persons employed on a part-time basis varied from industry to industry, with the nursing homes industry having the highest incidence (78%) of part-time employees.

**21.21 COMMUNITY SERVICES INDUSTRY—1995–96**

	Unit	Child care services	Accommodation for the aged	Residential care services n.e.c.	Non-residential care services n.e.c.	Nursing homes	Total
Businesses/organisations at 30 June							
'For profit' organisations	no.	1 290	159	79	50	538	<b>2 115</b>
'Not for profit' organisations	no.	1 515	534	529	2 191	323	<b>5 092</b>
Total businesses/organisations	no.	2 805	693	608	2 241	860	<b>7 207</b>
Employment at 30 June							
Full-time	persons	15 474	9 976	7 488	25 004	21 943	<b>79 885</b>
Part-time	persons	20 661	23 445	9 358	38 650	76 954	<b>169 068</b>
Total employment	persons	36 135	33 421	16 846	63 654	98 897	<b>248 953</b>
Volunteers for the month of June	persons	19 538	18 684	10 899	146 444	15 579	<b>211 144</b>
Income							
Government funding	\$m	455.9	464.5	293.5	929.9	1 761.6	<b>3 905.4</b>
Sales of goods and services	\$m	357.7	454.6	90.9	444.4	1 003.2	<b>2 350.8</b>
Other income	\$m	20.3	150.5	83.9	615.3	168.4	<b>1 038.4</b>
Total income	\$m	833.9	1 069.6	468.3	1 989.6	2 933.2	<b>7 294.6</b>
Expenses							
Labour costs	\$m	536.0	618.2	352.2	971.8	2 056.5	<b>4 534.7</b>
Other expenses	\$m	255.7	373.7	152.2	898.7	736.3	<b>2 416.6</b>
Total expenses	\$m	791.7	991.9	504.4	1 870.5	2 792.8	<b>6 951.3</b>

Source: Community Services, Australia, 1995–96 (8696.0).

In addition to 248,953 persons employed, a further 211,144 persons were working in the industry at 30 June 1996 as volunteers. These were particularly important in the non-residential care services n.e.c. industry, with 146,444 persons providing volunteer services to businesses in the industry at 30 June 1996.

The community services industry generated \$7,295m in income in 1995–96. Government funding was the source of \$3,905m (54%) while sales of goods and services accounted for 32% of income (\$2,351m). The role of government funding was particularly significant in the nursing homes industry, accounting for 60% of total income. Total expenses of the community services industry were \$6,951m, labour costs representing the largest proportion (65%).

## Sports industries

The sports industries cover businesses and organisations involved in horse and dog racing, operations of sports grounds and facilities, other sports, and services to sports. These industries were surveyed by the ABS for the first time in respect of 1994–95.

There were 5,066 businesses and organisations in the sports industries at 30 June 1995. These businesses employed 58,414 persons at 30 June 1995 (table 21.22). Employment was highest in the months March to September, peaking in April (59,835 persons). The lowest month for employment was December with 48,455 persons. There were a further 112,877 unpaid volunteers in these industries at 30 June 1995, which represented 66% of persons working in the sports industries.

The sports industries generated \$2,517m in income during 1994–95 and had an operating profit before tax of \$169.7m. This represented an operating profit margin of 7.3%. A factor affecting the operating profit margin is the existence of many 'not for profit' organisations in these industries (42% of total businesses and organisations in 1994–95).

**21.22 SPORTS INDUSTRIES—1994–95**

	Unit	Horse and dog racing	Sports ground and facilities n.e.c.	Sports and services to sports n.e.c.	Total
Businesses/organisations at 30 June	no.	898	1 581	2 588	<b>5 066</b>
Employment at 30 June					
Full-time	persons	4 869	7 208	6 879	<b>18 956</b>
Part-time	persons	9 249	14 355	15 854	<b>39 458</b>
Total employment	persons	14 118	21 563	22 732	<b>58 414</b>
Volunteers at 30 June	persons	258	11 865	100 754	<b>112 877</b>
Total Income	\$m	789.1	796.3	931.6	<b>2 517.0</b>
Operating profit before tax	\$m	50.6	49.0	70.1	<b>169.7</b>
Operating profit margin	%	6.6	6.5	8.7	<b>7.3</b>

Source: *Sports Industries, Australia, 1994–95* (8686.0).

**Travel agency services**

The travel agency services industry covers those businesses whose main activity is the provision of travel agency services such as transport and/or accommodation bookings and tour wholesaling or retailing. The ABS conducted a survey of this industry in respect of 1996–97. It was the second survey of the industry undertaken by the ABS, the previous one being in respect of 1986–87.

As shown in table 21.23 there were 3,266 businesses involved in the travel agency services industry at 30 June 1997. These businesses comprised 2,842 retail travel agent businesses, 174 wholesalers/ticket consolidators, 170 inbound tour operators and 80 tourist bureaux.

The industry generated total income of \$1,980m in 1996–97. Retail travel agency businesses accounted for \$1,129m (57%), while

wholesalers/ticket consolidators were the other major contributor, accounting for \$483m (24%) of total income.

Total employment of the industry at 30 June 1997 was 24,451 persons, the majority (80% or 19,502 persons) employed full-time. The retail travel agents accounted for 68% (16,505 persons) of total employment in the industry.

The travel agency services industry generated an operating profit before tax of \$37m in 1996–97. This represented an operating profit margin of 2.0% for the year. However, the operating profit margin varied considerably by the type of travel agency business. While retail travel agents and inbound tour operators both recorded positive operating margins (8.1% and 6.5% respectively), wholesale travel agency businesses recorded a negative operating profit margin (–16.8%), from a net loss of \$73m in 1996–97.

**21.23 TRAVEL AGENCY SERVICES INDUSTRY—1996–97**

	Unit	Retailers	Wholesalers and ticket consolidators	Inbound tour operators	Tourist bureaux	Total
Businesses at 30 June	no.	2 842	174	170	80	<b>3 266</b>
Employment at 30 June						
Full-time	persons	13 508	3 985	1 699	310	<b>19 502</b>
Part-time	persons	2 997	577	1 078	298	<b>4 949</b>
Total employment	persons	16 505	4 562	2 777	608	<b>24 451</b>
Income						
Ticket sales	\$m	903.4	373.9	287.5	6.0	<b>1 570.8</b>
Other travel related income	\$m	133.8	40.2	18.3	2.2	<b>194.6</b>
Other income	\$m	92.1	68.7	34.3	19.1	<b>214.2</b>
Total income	\$m	1 129.3	482.8	340.1	27.3	<b>1 979.5</b>
Expenses						
Labour costs	\$m	407.1	156.8	70.3	13.7	<b>647.9</b>
Other expenses	\$m	628.7	395.4	248.9	14.7	<b>1 287.7</b>
Total expenses	\$m	1 035.8	552.2	319.2	28.4	<b>1 935.6</b>
Operating profit before tax	\$m	89.4	–72.5	21.3	–0.9	<b>37.3</b>
Operating profit margin	%	8.1	–16.8	6.5	–5.3	<b>2.0</b>

Source: *Travel Agency Services Industry, Australia, 1996–97* (8653.0).

## Interest groups

The first ABS survey of the interest groups industry was conducted in respect of 1995–96. The interest groups industry includes organisations mainly engaged in promoting the interests of employers or self-employed persons, employees and other community interests. It includes business associations, professional organisations, chambers of commerce, industrial or trade unions, consumer associations, automobile associations, political parties etc.

At 30 June 1996, there were 3,737 businesses and organisations in the interest groups industry (table 21.24). The industry employed a total of 47,072 persons at 30 June 1996, with 55% being employed on a full-time basis. In addition, there were 101,622 persons working in the industry during the month of June on a volunteer basis.

Total income of the interest groups industry in 1995–96 was \$3,251m, with the interest groups n.e.c. industry accounting for 54% of the total, business and professional associations accounting for 31%, and labour associations accounting for the balance (15%). The major expense of the industry was labour costs of \$1,237m, which represented 41% of all expenses.

## Libraries

The ABS conducted its first comprehensive survey of the libraries industry in respect of 1996–97. The survey covered all businesses and organisations whose main activity was the acquisition, collection, organisation, conservation and loan of library materials such as books, magazines, manuscripts, musical scores, maps and prints. It also included archival service activities. In addition, the library activities of local government authorities were included in the survey. Libraries with restricted access such as those operated by educational institutions (universities and schools), and libraries operated by businesses for internal reference purposes, were excluded from the survey.

As shown in table 21.25, at 30 June 1997 there were 564 organisations in the libraries industry. These organisations operated from 1,468 locations and employed 11,877 persons. Of these, 59% were employed on a full-time basis.

Total income of the industry in 1996–97 was \$667m. The great majority of income was from government funding, which accounted for \$597m or 90%. Expenses of the industry totalled \$631m, with wages and salaries accounting for over half (52%) of all expenses.

In 1996–97, there were 89,564,600 visits to public libraries, which represented nearly five visits per person for the year. These visits resulted in public library loans of 153,893,900 books and other materials, representing a ratio of 1.7 loans per visit.

**21.24 INTEREST GROUPS INDUSTRY—1995–96**

	Unit	Business and professional associations	Labour associations	Interest groups n.e.c.	Total
Businesses/organisations at 30 June	no.	999	276	2 462	<b>3 737</b>
Employment at 30 June					
Full-time	persons	8 143	3 879	13 986	<b>26 008</b>
Part-time	persons	2 559	770	17 735	<b>21 064</b>
Total employment	persons	10 702	4 649	31 721	<b>47 072</b>
Volunteers during the month of June	persons	15 557	5 221	80 844	<b>101 622</b>
Income					
Membership/affiliation fees or levies	\$m	488.7	426.8	406.1	<b>1 321.6</b>
Government funding	\$m	86.5	7.3	371.8	<b>465.6</b>
Sales of goods and services	\$m	272.0	16.2	560.2	<b>848.4</b>
Other income	\$m	161.4	45.3	408.9	<b>615.6</b>
Total income	\$m	1 008.6	495.6	1 747.0	<b>3 251.2</b>
Expenses					
Labour costs	\$m	358.9	205.8	672.0	<b>1 236.7</b>
Other expenses	\$m	594.4	255.0	915.6	<b>1 765.0</b>
Total expenses	\$m	953.3	460.8	1 587.6	<b>3 001.7</b>

Source: *Interest Groups, Australia, 1995–96* (8639.0).



**21.25 LIBRARIES INDUSTRY—1996–97**

	Unit	Public libraries	Archival service organisations	Other libraries	Total
Organisations at 30 June	no.	527	9	28	<b>564</b>
Locations at 30 June	no.	1 427	11	30	<b>1 468</b>
Employment at 30 June					
Full-time	persons	5 940	763	266	<b>6 969</b>
Part-time	persons	4 722	122	64	<b>4 908</b>
Total employment	persons	10 662	885	330	<b>11 877</b>
Income					
Government funding	\$m	506.9	73.5	16.2	<b>596.7</b>
Other income	\$m	51.5	7.0	11.4	<b>69.9</b>
Total income	\$m	558.4	80.6	27.7	<b>666.6</b>
Expenses					
Wages and salaries	\$m	282.6	32.2	12.0	<b>326.8</b>
Other expenses	\$m	246.5	44.6	12.6	<b>303.7</b>
Total expenses	\$m	529.1	76.8	24.6	<b>630.5</b>

Source: *Libraries and Museums, Australia, 1996–97 (8649.0)*.

## Museums

In conjunction with the first survey of the libraries industry, the ABS also conducted its first comprehensive survey of the museums industry in respect of the 1996–97 financial year. The survey covered all businesses and organisations for which the main activity was the operation of art museums, museums and historic houses. Also included in the survey were the museum activities of local government authorities, where their operations had paid staff. Non-employing museums were excluded from the survey.

In total, there were 224 organisations in the museums industry at 30 June 1997 (table 21.26). These organisations operated from a total of 352 locations. Museums constituted the most common type of business in the industry (102 organisations), and there were 32 art museum organisations, 69 local government authorities which operated museums and 21 organisations which operated historic houses.

Employment in the industry totalled 5,636 persons, with 65% being employed full-time. There were also 8,443 volunteers working in the industry during June 1997. For the year 1996–97, there were 8,482,500 paid admissions to museums, generating admissions income of \$41m, which represented an average admittance price of \$4.83. In addition, there were 8,304,300 free admissions.

Total income of the industry in 1996–97 was \$425m. In addition to the \$41m in admissions income, the other main item of income was government funding of \$271m, which accounted for 64% of all income. Expenses for the year totalled \$402m, with labour costs accounting for 45%.

**21.26 MUSEUMS INDUSTRY—1996–97**

	Unit	Art museums	Museums	Local government museums/art museums	Historic houses	Total
Organisations at 30 June	no.	32	102	69	21	<b>224</b>
Locations at 30 June	no.	32	111	92	117	<b>352</b>
Employment at 30 June						
Full-time	persons	941	2 203	176	347	<b>3 667</b>
Part-time	persons	289	1 038	268	375	<b>1 969</b>
Total employment	persons	1 230	3 240	444	722	<b>5 636</b>
Volunteers during the month of June	persons	1 654	4 300	1 745	744	<b>8 443</b>
Admissions						
Paid admissions	'000	1 599	5 325	398	1 161	<b>8 483</b>
Free admissions	'000	3 162	3 351	1 599	192	<b>8 304</b>
Total admissions	'000	4 762	8 676	1 997	1 353	<b>16 787</b>
Income						
Government funding	\$m	80.7	157.5	18.4	14.0	<b>270.6</b>
Admissions income	\$m	9.1	22.8	1.0	8.2	<b>41.0</b>
Other income	\$m	40.5	54.3	2.7	16.1	<b>113.5</b>
Total income	\$m	130.3	234.6	22.0	38.3	<b>425.2</b>
Expenses						
Labour costs	\$m	48.3	106.6	9.7	16.2	<b>180.8</b>
Other expenses	\$m	61.1	128.8	9.5	21.5	<b>221.0</b>
Total expenses	\$m	109.4	235.3	19.2	37.8	<b>401.7</b>

Source: *Libraries and Museums, Australia, 1996–97* (8649.0).

**21.27 ZOOS, PARKS AND GARDENS INDUSTRY—1996–97**

	Unit	Zoos and aquaria	Botanical gardens	National parks and recreational parks and gardens	Total
Organisations at 30 June	no.	65	53	684	<b>802</b>
Locations at 30 June	no.	69	92	52 963	<b>53 124</b>
Employment at 30 June					
Full-time	persons	1 268	948	15 035	<b>17 251</b>
Part-time	persons	677	182	1 611	<b>2 470</b>
Total employment	persons	1 946	1 129	16 646	<b>19 721</b>
Volunteers during the month of June	persons	1 591	2 074	10 679	<b>14 344</b>
Paid admissions	'000	7 979	n.a.	n.a.	<b>n.a.</b>
Income					
Government funding	\$m	25.5	70.9	1 197.4	<b>1 293.8</b>
Admissions income	\$m	69.2	0.9	55.9	<b>126.0</b>
Other income	\$m	47.7	10.8	93.8	<b>152.3</b>
Total income	\$m	142.4	82.6	1 346.9	<b>1 571.9</b>
Expenses					
Labour costs	\$m	57.8	40.7	528.3	<b>626.8</b>
Other expenses	\$m	69.1	29.5	591.6	<b>690.2</b>
Total expenses	\$m	126.9	70.2	1 119.9	<b>1 317.0</b>

Source: *Zoos, Parks and Gardens Industry, Australia, 1996–97* (8699.0).

**Zoos, parks and gardens**

For reference year 1996–97, the ABS conducted a number of collections in respect of the cultural and recreational industries. Included in that program was a survey of organisations in the zoos, parks and gardens industry.

As shown in table 21.27, there were 802 organisations in the industry at the end of June 1997. These comprised 65 organisations mainly involved in the operation of zoos and

aquaria, 53 involved in the operation of botanical gardens, and 684 involved in the operation of national parks, and recreational parks and gardens. At 30 June 1997 these organisations employed a total of 19,721 persons, the majority (87%) of whom were employed full-time. The activity generating the greatest employment was the operation of national parks, and recreational parks and gardens, which accounted for employment of 16,646 persons. There were a further 14,344 volunteers working in the zoos, parks and gardens industry during June 1997.



Total income of the industry in 1996–97 was \$1,572m. Government funding of \$1,294m accounted for 82% of all income. Zoos and aquaria generated 49% (\$69m) of their total income from admissions income, making them the only sector within the zoos, parks and gardens industry group where government funding was not the major source of income. The admissions income resulted from 7,979,000 admissions during the year, which represented an average admission price of \$8.67.

Total expenses for the zoos, parks and gardens industry in 1996–97 were \$1,317m, labour costs accounting for 48% (\$627m).

### **Radio and television services**

The ABS conducted its second survey of the radio and television services industries, in respect of 1996–97, following a survey in respect of 1993–94. In the three years since the first survey, there was significant change, particularly in the television services industry with the emergence of pay television. Table 21.28 summarises the main results for the two years.

Within the radio industry, while the number of businesses fell marginally, employment increased by 5% to 5,064 persons at 30 June 1997. There

were an additional 11,203 volunteers working in community and other non-commercial radio stations. A significant increase (21%) in income, and a small rise (7%) in expenses during the period resulted in an operating profit before tax of \$93m for 1996–97. This represented an operating profit margin of 14.9%, compared with 3.6% in 1993–94.

The television services industry underwent significant change after 1993–94. This is illustrated in table 21.28, which shows a major turnaround in operating profit before tax. In 1993–94 the industry recorded an operating profit of \$378m, while in 1996–97 there was an operating loss of \$324m. The reason was the emergence of pay television broadcasting businesses, which recorded a loss of \$1,058m in 1996–97, more than offsetting the \$734m operating profit before tax recorded by commercial free-to-air broadcasters.

Commercial free-to-air broadcasters experienced an operating profit margin of 28.2% in 1996–97. However, due to the losses incurred by pay television broadcasters, the television industry as a whole experienced a sharp decline in its operating profit margin, from 17.7% in 1993–94 to –9.7% in 1996–97.

**21.28 RADIO AND TELEVISION SERVICES INDUSTRIES(a)**

	1993–94	1996–97	Increase
<b>RADIO SERVICES</b>			
	no.	no.	%
Businesses at 30 June			
Commercial broadcasters	117	103	–12.0
Community broadcasters	130	121	–6.9
Other broadcasters	18	37	105.6
<i>Total businesses</i>	265	261	–1.5
	persons	persons	%
Employment at 30 June			
Commercial broadcasters	4,273	4,361	2.1
Community broadcasters	517	499	–3.5
Other broadcasters	39	204	423.1
<i>Total employment</i>	4,829	5,064	4.9
	\$m	\$m	%
Total income	513.9	622.7	21.1
Operating profit before tax	18.5	92.6	..
	%	%	
Operating profit margin	3.7	14.9	..
<b>TELEVISION SERVICES</b>			
	no.	no.	%
Businesses at 30 June			
Free-to-air broadcasters	n.a.	34	..
Pay television broadcasters	n.a.	7	..
Community broadcasters	n.a.	7	..
<i>Total businesses</i>	43	48	11.6
	persons	persons	%
Employment			
Free-to-air broadcasters	n.a.	6,758	..
Pay television broadcasters	n.a.	2,085	..
Community broadcasters	n.a.	30	..
<i>Total employment</i>	8,422	8,873	5.4
	\$m	\$m	%
Income			
Sale of airtime	1,982	2,365	19.3
Other income	242	986	216.9
<i>Total income</i>	2,224	3,351	50.7
Operating profit before tax			
Free-to-air broadcasters	n.a.	734	..
Pay television broadcasters	n.a.	–1,058	..
Community broadcasters	n.a.	0	..
<i>Total operating profit before tax</i>	378	–324	..
	%	%	
Operating profit margin	17.7	–9.7	..

(a) Excludes public broadcasters.

Source: *Radio and Television Services, Australia, 1996–97* (8680.0).

## Motion picture exhibition

The ABS conducted a survey of the motion picture exhibition industry for 1996–97, the first survey of the industry since 1993–94. In the intervening three years, the industry experienced very significant growth, as shown in table 21.29.

While the number of businesses declined from 224 at 30 June 1994 to only 188 businesses at 30 June 1997, a fall of 16%, most other measures showed significant increases. The number of screens increased by 39% to 1,050 screens at 30 June 1997, while the number of seats available increased from 227,000 at 30 June 1994 to 323,000 at 30 June 1997. Overall the number of paid admissions increased by 22% from 60.0 million in 1993–94 to 73.3 million in 1996–97. The latter represents 4 visits per person, based on the Australian population of 18.5 million persons at the end of June 1997. Cinemas operated by the eight largest businesses (all with income greater than \$8m) had 74% of these paid admissions.

Employment in the industry was 7,739 persons at 30 June 1997, an increase of 35% on the 5,729 persons employed at June 1994. Of the former, the majority (80%) were employed part-time.

Total income of the industry for the financial year 1996–97 was \$832m, an increase of 31% on that recorded in 1993–94. Box office receipts were the major component of income, accounting for 66% (\$552m), while sales of food and beverages accounted for 17% of income.

The major items of expenses for the industry in 1996–97 were labour costs, which accounted for \$123m (17%) and film hire/rental which accounted for \$211m (30%). After deduction of expenses, the industry experienced an operating profit before income tax of \$120m, which represented an operating profit margin of 14.9%, up marginally on 12.0% in 1993–94.

### 21.29 MOTION PICTURE EXHIBITION INDUSTRY

	1993–94	1996–97	Increase
	no.	no.	%
Businesses at 30 June	224	188	-16.1
Cinema screens at 30 June	754	1 050	39.3
Cinema seats at 30 June	227 000	323 000	42.3
Paid admissions	60 047 000	73 262 000	22.0
	persons	persons	%
Employment at 30 June			
Full-time	1 205	1 545	28.2
Part-time	4 523	6 194	36.9
Total employment	5 729	7 739	35.1
	\$m	\$m	%
Income			
Gross box office receipts	447.5	551.8	23.3
Sales of food and beverages	105.0	142.1	35.3
Other income	82.8	138.3	67.0
Total income	635.3	832.2	31.0
Expenses			
Labour costs	99.0	123.1	24.3
Film hire/rental	168.1	211.2	25.6
Other expenses	293.0	378.9	29.3
Total expenses	560.1	713.2	27.3
Operating profit before tax	75.1	119.9	59.7
	%	%	
Operating profit margin	12.0	14.9	..

Source: Motion Picture Exhibition, Australia, 1996–97 (8654.0).

## Film and video production

As part of the cultural industries program of collections undertaken in 1996–97, the ABS conducted a survey of the film and video production industry. This industry covers businesses mainly engaged in the production of motion pictures on film or video tape for theatre or television. Also included are businesses mainly providing production services such as casting, film editing and titling. This was the second ABS survey of the industry, following a survey in respect of 1993–94.

As shown in table 21.30, there were 2,003 businesses in the film and video production industry at 30 June 1997, a 70% increase on the 1,179 businesses in the industry at 30 June 1994. Employment increased by 57% to 9,438 persons in the three year period from 30 June 1994, of whom 62% were employed full-time.

**21.30 FILM AND VIDEO PRODUCTION INDUSTRY—1996–97**

	Units	1993–94	1996–97	% change
Businesses at 30 June	no.	1 179	2 003	69.9
Employment				
Full-time	persons	n.a.	5 857	n.a.
Part-time	persons	n.a.	3 581	n.a.
Total employment	persons	5 998	9 438	57.4
Income				
Income from the production of commissioned works	\$m	239.8	681.3	184.1
Income from the provision of production and post-production services	\$m	184.0	222.6	21.0
Other income	\$m	183.9	224.6	22.1
Total income	\$m	607.7	1 128.5	85.7
Expenses				
Labour costs	\$m	203.6	351.7	72.8
Income from the provision of post-production/film laboratory services	\$m	62.5	73.0	16.8
Other expenses	\$m	439.8	770.7	75.2
Total expenses	\$m	705.8	1 195.5	69.4
Operating profit/loss before tax	\$m	–98.1	–66.9	31.8
Operating profit margin	%	–21.0	–6.1	..

Source: *Film and Video Production and Distribution, Australia, 1996–97* (8679.0).

The film and video production industry generated \$1,129m in total income for 1996–97, of which \$681m (60% of total income) was from the production of commissioned works. The industry recorded an operating loss of \$67m for 1996–97, which represented an operating profit margin of –6.1%. This was a considerable improvement on the results for 1993–94 when the industry had an operating loss of \$98m and an operating profit margin of –21.0%.

Table 21.31 shows that the main activity of businesses in the industry was making productions specifically for television (\$533m), which accounted for 55% of the total value of production activity in 1996–97 (\$977m). The other major activities were the production of commercials and advertisements (\$197m) and feature films (\$192m) which each accounted for 20% of total activity.

**21.31 FILM AND VIDEO PRODUCTION ACTIVITY—1996–97**

Type of activity	Value	Contribution to total
	\$m	%
Productions made specifically for television	532.6	54.5
Commercials and advertisements	196.8	20.1
Feature films	192.4	19.7
Corporate/marketing/training videos	40.7	4.2
Documentaries	2.9	0.3
Short films	0.7	0.1
Other	11.0	1.1
<b>Total</b>	<b>977.1</b>	<b>100.0</b>

Source: *Film and Video Production and Distribution, Australia, 1996–97* (8679.0).

**Film and video distribution**

In conjunction with the survey of the film and video production industry, the ABS also conducted a survey of employing businesses in the film and video distribution industry in respect of 1996–97. The film and video distribution industry is made up of businesses mainly engaged in leasing or wholesaling motion pictures on film or video tape to organisations for exhibition or sale. It also includes channel providers to pay television operators. The ABS had undertaken a previous survey of this industry in respect of 1993–94.

As shown in table 21.32, the industry is small with only 66 businesses, compared with 69 businesses operating at 30 June 1994. Employment in the industry increased by 37% to 1,341 persons over the three year period to 30 June 1997. The great majority (83%) of persons were employed full-time.

Total income of the industry in 1996–97 was \$974m, an increase of 52% over 1993–94. A major contributing factor to this increase was the emergence during the period of pay television channel provider businesses, which generated \$156m in subscriber income in 1996–97.

In spite of the increase in income, the operating profit before tax of the industry declined from \$40m in 1993–94 to only \$3m in 1996–97. Pay television channel provider businesses were a major contributor to this turnaround, recording a loss in 1996–97 of \$21m.

## Performing arts

The ABS conducted its first survey of the performing arts industries in respect of 1996–97. These industries are made up of businesses mainly engaged in activities including the provision of music and theatre productions, the operation of performing arts venues, and the provision of other services to the arts such as casting agency operation and costume design.

### 21.32 FILM AND VIDEO DISTRIBUTION INDUSTRY—1996–97

	Units	1993–94	1996–97	% change
Businesses at 30 June	no.	69	66	–4.3
Employment at 30 June				
Full-time	persons	808	1 107	37.0
Part-time	persons	173	234	35.3
Total employment	persons	981	1 341	36.7
Income				
Rental/lease income	\$m	324.5	434.1	33.8
Sales	\$m	227.1	253.2	11.5
Subscriber income	\$m	..	156.0	..
Other	\$m	89.1	130.6	46.6
Total income	\$m	640.7	973.9	52.0
Expenses				
Labour costs	\$m	34.2	62.1	81.6
Other expenses	\$m	566.9	908.7	60.3
Total expenses	\$m	601.1	970.8	61.5
Operating profit/loss before tax	\$m	39.6	3.1	–92.2
Operating profit margin	%	6.9	0.3	..

Source: Film and Video Production and Distribution, Australia, 1996–97 (8679.0).

### 21.33 PERFORMING ARTS INDUSTRIES—1996–97

	Units	Music and theatre production	Performing arts venues	Other services to the arts	Total
Businesses at 30 June	no.	881	150	369	<b>1 399</b>
Performing arts spaces at 30 June	no.	48	315	..	<b>362</b>
Employment at 30 June					
Working proprietors and partners	persons	354	..	87	<b>442</b>
Employees	persons	5 727	5 601	1 589	<b>12 918</b>
Total employment	persons	6 082	5 601	1 676	<b>13 359</b>
Income					
Government funding	\$m	179.3	88.9	26.1	<b>294.3</b>
Income from box office	\$m	264.9	76.9	..	<b>341.8</b>
Other income	\$m	150.0	165.8	329.4	<b>645.2</b>
Total income	\$m	594.3	331.6	355.5	<b>1 281.3</b>
Expenses					
Labour costs	\$m	223.2	105.2	42.0	<b>370.5</b>
Contract payments to performers/artists	\$m	32.8	7.2	78.7	<b>118.7</b>
Other expenses	\$m	335.8	208.0	212.2	<b>756.0</b>
Total expenses	\$m	591.8	320.4	332.9	<b>1 245.2</b>
Operating profit before tax	\$m	2.6	9.1	22.6	<b>34.3</b>
Operating profit margin	%	0.7	4.4	7.0	<b>3.8</b>

Source: Performing Arts Industries, Australia, 1996–97 (8697.0).

There were 1,399 employing businesses in the performing arts industries at 30 June 1997. These consisted of 881 businesses in the music and theatre production industry, 150 in the performing arts venue industry, and 369 in the services to the arts industry. The industries combined employed 13,359 persons at 30 June 1997, and generated total income of \$1,281m in 1996–97. After expenses, operating profit before tax for 1996–97 was \$34m, representing an operating profit margin of 3.8% (table 21.33).

There were 68,994 paid performances in the music and theatre production industry during 1996–97. There were 12.8 million paid attendances at these performances. In terms of paid attendances, the most popular types of productions were musicals (3.3 million attendances) and popular music productions (3.1 million).

### Commercial art galleries

As part of the cultural industries surveys undertaken in respect of 1996–97, the ABS conducted its first survey of the commercial art galleries industry. The industry is made up of businesses mainly engaged in the display and sale of artworks. Therefore the survey results exclude direct sales by the artist, and sales of artwork by auction houses, art museums, department stores etc.

As shown in table 21.34, at 30 June 1997 there were 457 commercial art gallery businesses operating in Australia, employing 1,156 persons. Females accounted for 62% of total employment in the industry; 56% of females worked part-time. In comparison, the majority (74%) of males in the industry worked full-time.

The total income of commercial art gallery businesses in 1996–97 was \$87m. Income of \$50m was generated by the sale of artworks owned by the business, while a further \$26m was earned from commissions on the sale of artworks on consignment.

After expenses, the commercial art galleries industry generated an operating profit before tax of \$2.8m in 1996–97, representing an operating profit margin of 3.5%.

The total value of artworks sold by commercial art galleries, either on own account or on commission, was \$131m. It is estimated that commercial art galleries accounted for only 25% of all artwork sales in 1996–97, the remaining sales being either direct from the artist or through other outlets such as auction houses and art museums. Sales of Aboriginal and Torres Strait Islander artworks in commercial art galleries totalled \$15m in 1996–97, 11% of total gross sales. Sales of overseas artworks in 1996–97 totalled only \$2.5m, 2% of total gross sales.

**21.34 COMMERCIAL ART GALLERIES  
INDUSTRY—1996–97**

	Units	Value
Businesses at 30 June	no.	457
Employment at end June		
Males	no.	434
Females	no.	721
Persons	no.	1 156
Income		
Commission income from the sales of artworks on consignment	\$m	25.7
Income from sales of artworks owned by the business	\$m	49.5
Other income	\$m	12.1
Total income	\$m	87.3
Cost of artworks sold		
Purchases of artworks for resale	\$m	30.2
Plus opening stocks of artworks	\$m	28.0
Less closing stocks of artworks	\$m	25.5
Total cost of artworks sold	\$m	32.7
Other expenses		
Wages and salaries(a)	\$m	11.3
Other	\$m	40.4
Total other expenses	\$m	51.7
Operating profit before tax	\$m	2.8
Operating profit margin	%	3.5

(a) Excludes drawings of working proprietors and partners of unincorporated businesses.

Source: *Commercial Art Galleries, Australia, 1996–97* (8651.0).

## Sound recording studios

As shown by an ABS survey in respect of 1996–97, the sound recording studios industry is small, with only 190 businesses at 30 June 1997 (table 21.35). The industry includes sound recording studio businesses, freelance recording personnel, location sound recordists (e.g. working on movies or for television), and operators of mobile studios. The industry employed 499 persons at 30 June 1997, of whom almost two-thirds (65%) were males. Of the males, 70% were employed full-time, compared with 57% of females.

The sound recording studio industry generated \$44m in total income in 1996–97, of which \$21m (48% of total income) was from the hire of studios. The industry recorded an operating profit before tax of \$5m for the 1996–97 financial year, which represented an operating profit margin of 11.7%.

### 21.35 SOUND RECORDING STUDIOS INDUSTRY—1996–97

	Units	Value
Businesses at 30 June	no.	190
Employment at 30 June		
Full-time	persons	327
Part-time	persons	172
<i>Total employment</i>	<i>persons</i>	<i>499</i>
Income		
Hire of studio	\$m	20.9
Other income	\$m	22.7
<i>Total income</i>	<i>\$m</i>	<i>43.6</i>
Expenses		
Labour costs	\$m	12.5
Other expenses	\$m	26.0
<i>Total expenses</i>	<i>\$m</i>	<i>38.5</i>
Operating profit before tax	\$m	5.1
Operating profit margin	%	11.7

Source: Sound Recording Studios, Australia, 1996–97 (8555.0).

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# GAMBLING IN AUSTRALIA

## Introduction

Gambling activity in Australia has grown enormously during the nineties. Recent ABS data revealed that expenditure on legalised gambling exceeded \$11b in 1997–98. During the decade, poker/gaming machines have infiltrated pubs and clubs in all States and Territories, with the exception of Western Australia, to the extent that they are perhaps the most topical and visible form of gambling today. Each State and Territory now has at least one casino operating within its jurisdiction, while new innovations such as phone and Internet betting seek to maximise gambling opportunities for the public.

## Gambling's share of household income

Associated with the expansion in the availability of gambling opportunities has been an increase in the proportion of household disposable income devoted to gambling. As shown in graph S9.1, gambling expenditure as a proportion of household disposable income has nearly doubled, from 1.7% in 1982–83 to 3.2% in 1997–98, most of the increase occurring in the

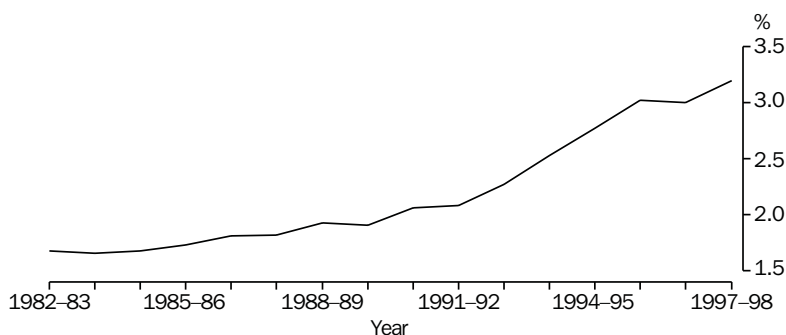
early to mid nineties, coinciding with the expansion of poker machines in Victoria, Queensland and South Australia and the introduction of casinos in most States.

This rapid growth in gambling expenditure has caused much concern among some community groups and sparked a great deal of public debate.

## Gambling as an industry

The provision of gambling services is now a major industry in Australia. An ABS survey of businesses showed that at June 1998 there were 7,072 businesses involved in the provision of gambling services, an increase of 9% since June 1995. As shown in table S9.2, the number of pubs, taverns and bars businesses offering gambling services increased by 24% in the three year period to June 1998, while the number of clubs providing such services increased by 12% to 2,408 businesses. These large increases were offset by falls in the number of casinos (from 14 to 13), and in the number of businesses operating lotteries or providing lottery agency services (by almost 25% from 178 in 1995–95 to 134 in 1997–98). The number of businesses providing other gambling services, such as bookmakers and TAB agencies, fell by 12% in the same period.

**S9.1 GAMBLING EXPENDITURE, Proportion of Household Disposable Income—1982–83 to 1997–98**



Source: Tasmanian Gaming Commission, Australian Gambling Statistics, 1972–73 to 1997–98.

### S9.2 BUSINESSES WITH GAMBLING ACTIVITY, By Industry—1994–95 and 1997–98

	1994–95	1997–98	Change
	no.	no.	%
Pubs, taverns and bars	2 397	2 888	24.1
Clubs (hospitality)	2 144	2 408	12.3
Casinos	14	13	-7.1
Lotteries	178	134	-24.7
Gambling services n.e.c.	1 849	1 629	-11.9
<b>Total</b>	<b>6 512</b>	<b>7 072</b>	<b>8.6</b>

Source: *Gambling Industries, Australia 1997–98* (8684.0).

The 7,072 businesses providing gambling services had a total income from gambling of \$11,091m in 1997–98. This represented an increase of 42% in gambling income since 1994–95, an average annual increase of just over 12%. Poker/gaming machines were the major source of gambling income in 1997–98, accounting for \$6,401m or 58% of all gambling income (table S9.3). This represented an annual increase of 17% over the three year period from 1994–95

While takings from poker/gaming machines for 1997–98 were highest in clubs (\$3,595m), the greatest percentage increase in takings from poker/gaming machines since 1994–95 occurred in casinos (104%) and pubs, taverns, and bars (113%).

The spectacular increase in income from poker/gaming machines did not appear to occur at the expense of other forms of gambling. Takings from gaming tables in casinos increased by 41% in the period 1994–95 to 1997–98 to \$1,432m. In the same period, off-course TAB sales increased by 8% to \$1,430m and takings from lotteries, lotto style games and football pools increased by 19%. Only the on-course totalisator sector experienced a decline in gambling revenue in this period, of only 0.2%.

The gambling-related industries (including clubs, pubs, taverns and bars with gaming facilities) employed 156,893 persons at the end of June 1998, which represented an increase of 17% since 1995. They recorded an operating profit before tax of \$1,536m for the financial year 1997–98.

### S9.3 GAMBLING INCOME, By Type of Gambling and Venue

	1994–95		1997–98		Change
	\$m	%	\$m	%	%
Poker/gaming machines					
Clubs	2 610.0	33.4	3 595.0	32.4	37.2
Pubs, taverns and bars	990.3	12.6	2 105.7	19.0	112.6
Casinos	343.6	4.4	700.1	6.3	103.8
Total	3 954.9	50.5	6 400.8	57.7	61.8
On-course totalisator	129.6	1.7	129.4	1.2	-0.2
Off-course TAB					
Thoroughbred, harness and greyhound betting	n.a.	..	1 416.5	12.8	..
Other gambling	n.a.	..	13.1	0.1	..
Total	1 327.2	16.9	1 429.7	12.9	7.7
Bookmakers					
Thoroughbred, harness and greyhound betting	n.a.	..	54.3	0.5	..
Other gambling	n.a.	..	10.3	0.1	..
Total	44.2	0.6	64.5	0.6	45.9
Lotteries, lotto style games, football pools, instant money and club keno	—	—	—	—	—
Lotteries, lotto style games and football pools	n.a.	..	1 179.1	10.6	..
Instant money	n.a.	..	246.4	2.2	..
Club keno	n.a.	..	175.7	1.6	..
Total	1 344.6	17.2	1 601.3	14.4	19.1
Casino keno	25.5	0.3	33.4	0.3	31.0
Casino gaming tables	1 012.7	12.9	1 431.6	12.9	41.4
<b>Total</b>	<b>7 838.7</b>	<b>100.0</b>	<b>11 090.7</b>	<b>100.0</b>	<b>41.5</b>

Source: *Gambling Industries, Australia, 1997–98* (8684.0).

## The social issues

The income of the gambling industry is largely generated by the gambling habits and losses of the adult population of Australia. As shown in table S9.4, the total estimated losses from gambling in 1997–98 equated to a loss of \$819 for every adult in Australia. New South Wales (a loss of \$963 per adult) and Victoria (\$921 per adult) were well above the Australian average. Next to Tasmania, the lowest average expenditure occurred in Western Australia (\$528 per adult), reflecting the fact that Western Australia was the only State without poker/gaming machines in clubs, pubs, taverns and bars.

As gambling activity steadily increased in the nineties, so too did debate concerning the potential social costs of excessive gambling. In 1998 the Productivity Commission commenced a broad investigation into the gambling industry. The draft report of this investigation was released in July 1999 for further submissions and comment. Key findings of the draft report included the observation that gambling provides some enjoyment to most Australians, with over 80% indulging in gambling activities at some stage in the previous year. However, it also found that around 330,000 Australians (2.3% of the adult population) had significant gambling problems, with 140,000 experiencing severe problems. The report estimates that the 330,000 problem gamblers on average lost nearly \$12,000 per year from gambling activity. The costs of gambling are not only financial, with many problem gamblers experiencing emotional difficulties—one in ten

problem gamblers said that they had contemplated suicide because of gambling. Importantly, the Commission found that the prevalence of problem gambling is directly related to the degree of accessibility of gambling, particularly poker/gaming machines.

The Productivity Commission inquiry found evidence that low income people on average spend a higher proportion of their incomes on poker/gaming machines. However, results were mixed on whether poker/gaming machines are concentrated in low income local government areas (LGAs). Only in some areas of Victoria was there a strong inverse relationship between average income levels and the density of gaming machines (i.e. the lower the average income of people in the LGA, the greater the number of gaming machines).

It would be simplistic to conclude that the increase of gambling activity and problem gambling is solely attributable to the proliferation of poker/gaming machines. However it seems clear that the gambling industry is heavily reliant on expenditure by what could be described as the 'average punter', not the so-called 'high-rollers'—especially considering the large number of gambling activities available in pubs and clubs. Clubs, pubs, taverns and bars with gambling facilities increased expenditure on advertising, marketing and promotion from an average of \$21,494 per business in 1994–95 to \$63,501 in 1997–98, and this may have assisted in attracting a new type of patron to these businesses, and hence to the gambling industry.

**S9.4 GAMBLING EXPENDITURE, Per Head of Adult Population—1997–98**

State and Territory	Poker/gaming machines(a)	Casino(a)	Racing	Lotteries, lotto, pools, keno etc.	Total
	\$	\$	\$	\$	\$
New South Wales	636.00	94.90	134.60	97.70	963.20
Victoria	493.30	214.00	124.90	88.80	921.00
Queensland	239.60	186.60	113.30	154.80	694.30
South Australia	351.40	67.80	92.90	105.10	617.20
Western Australia	0.00	270.80	111.90	144.80	527.50
Tasmania	68.00	217.40	90.10	132.20	507.70
Northern Territory	153.00	367.60	223.70	117.20	861.50
Australian Capital Territory	555.30	75.50	91.50	75.30	797.60
<b>Australia</b>	<b>424.10</b>	<b>161.40</b>	<b>121.70</b>	<b>111.60</b>	<b>818.80</b>

(a) Expenditure on gaming machines located in casinos are recorded as expenditure in Casino for these statistics.

Source: *Tasmanian Gaming Commission, Australian Gambling Statistics 1972–73 to 1997–98.*

## Gambling as a source of tax revenue

Key stakeholders in the gambling industry include the State Governments. In 1997–98 businesses providing gambling services paid \$3,833m in gambling taxes and levies (table S9.5). This represented 34% of total gambling expenditure. Poker/gaming machines and keno contributed \$1,786m (47% of the total) in gambling taxes and levies in 1997–98, easily the largest form of gambling taxation revenue for government. Lotteries, lotto style games, football pools and instant money sales generated \$1,004m in taxes to government in the 1997–98 financial year.

### S9.5 GAMBLING TAXES AND LEVIES, By Type of Gambling—1997–98

Type of gambling	\$m
Poker/gaming machines and keno	1 785.7
TAB/totalisator	553.8
Bookmakers	21.6
Lotteries, lotto style games and football pools	1 003.8
Casinos(a)	459.8
Minor gaming	8.5
<b>Total</b>	<b>3 833.2</b>

(a) Includes taxes on poker machines located in casinos.

Source: *Tasmanian Gaming Commission, Australian Gambling Statistics 1972–73 to 1997–98.*

## References

- ABS, *Gambling Industries, Australia, 1997–98* (8684.0).
- Productivity Commission, *Australia's Gambling Industries, Draft Report, Canberra, July 1999.*
- Tasmanian Gaming Commission, *Australian Gambling Statistics 1972–73 to 1997–98.*



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## Introduction

**T**ourism encompasses most short-term travel away from the normal place of work and residence, including travel undertaken for business and pleasure.

It is defined by the World Tourism Organization (WTO) as: “the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes”.

This identifies ‘tourism’ as being more than just leisure travel. It also encompasses travel for business, health, education, religious and other reasons.

Tourism comprises both domestic and international travel. In an economic context, its effects are to generate economic activity and to transfer such activity between different parts of the economy. As it involves the consumption or purchase by tourists—or ‘visitors’ in the WTO terminology—of any good or service, its economic impact ranges over many sectors of the economy. The impact of tourism is most directly felt by sectors such as transport and tour operators, accommodation establishments, theme parks and attractions, entertainment and arts venues, museums and historical sites, restaurants, travel agents and souvenir retailers. However, other sectors also benefit both directly and indirectly from tourism demand.

Tourism also draws on services provided by the Commonwealth Government, the State and Territory Governments, and local government organisations without direct charge to tourists. These include the construction and maintenance of roads, airports, harbours, railways and national parks, tourism promotion, immigration and customs services, information services, and the provision of a large number of recreational facilities.

While tourism has been an economic factor in Australia for a very long time, in recent times it has grown to the extent that it is now recognised as a major contributor to total economic activity. In particular, international tourism has experienced substantial growth in the past decade or so. This has focused the need for improved standards of facilities and service, and has contributed to a recognition that tourism covers a sophisticated set of economic activities with great potential for future domestic and export earnings.

Because of Australia’s island status and distance from most of its international source markets, tourism in this country will continue to be dominated by domestic tourism for the foreseeable future. Despite high annual growth rates, international tourism still only accounts for around a quarter of total tourism activity. While international tourism is forecast to continue to enjoy significantly higher growth rates than domestic tourism, it will be well into the next century before it matches the level of activity of domestic tourism.

## Economic importance

It is estimated by the Bureau of Tourism Research that expenditure by visitors directly contributed 7.4% to Gross Domestic Product in 1995–96, and accounted directly for some 694,000 jobs (8.4% of total employment).

In 1998, domestic tourism expenditure was an estimated \$43.0b. International tourism to Australia generated export earnings of \$17.3b (up 6.1% on 1997). This accounted for 15.1% of Australia’s total export earnings (13.1% in 1997) and 67.2% of services exports (65.6% in 1997).

While growth in tourism flows to Australia in the mid to late 1980s was at almost twice the international growth rate in tourism flows to all countries, Australia’s share of world tourism is still small, accounting for only around 0.5% of total international visitor arrivals in all countries. Because Australia is a long-haul destination for most international visitors, this share is never likely to be large. However, starting from a low base, there is still considerable potential for growth.

The number of international visitors to Australia increased at an average of 25% per year from 1984 to 1988. However, 1989 saw a 7.5% decrease in arrivals to 2.1 million, following the strong contributions of Expo 88 and the Bicentennial to the growth in 1988, but also reflecting the adverse impact of the disruption to domestic airline services caused by the airline pilots’ dispute in late 1989. Arrivals recovered by 6.5% to 2.2 million in 1990 and then increased to new record levels of 2.4 million in 1991, growing by double digit rates in most years to reach 4.4 million by 1997. The number of arrivals in 1998 was 4.2 million, representing a decline in arrivals of 3.5% over 1997. This decline compared with growth of 11.8% in 1996 but only 3.7% in 1997, and reflected the serious economic problems in Asia.



The domestic travel market was relatively stagnant in the late 1980s, and experienced an overall small downward trend in visitor nights during the early 1990s. Because of changes in survey methods, it is not possible to compare the figures for 1998 with earlier figures.

## Domestic tourism

In 1998, Australian residents, 15 years of age and over, spent a total of 293.5 million nights visiting other parts of the country (table 22.1). Each trip took an average of four nights, and each person in the population made an average of five trips during the year. Residents of the Australian Capital Territory were the most frequent travellers (average of eight trips), while residents of the Northern Territory tended to stay away for the longest period (average of six nights).

As table 22.2 shows, 'pleasure/holiday' was the main purpose of visit, accounting for the biggest proportion of visitor nights (48%), followed by 'visiting friends/relatives' (30%). 'Business' visits accounted for 16% of all visitor nights, while 'other' reasons accounted for 6%.

New South Wales was the most popular destination, accounting for nearly a third of all visitor nights (32%). Queensland was the next most popular destination, attracting nearly a quarter of all visitor nights (24%), while Victoria accounted for nearly a fifth of all visitor nights (19%).

### 22.1 SUMMARY OF PERSON TRIPS AND NIGHTS AWAY(a), By State/Territory of Origin—1998

State/Territory of origin	Estimated population as at 30 June 1998 '000 (b)	Person trips '000	Average trips per person	Total nights away '000	Average nights away per person trip
New South Wales	5 025	25 251	5	96 533	4
Victoria	3 711	19 786	5	73 215	4
Queensland	2 712	13 069	5	54 605	4
South Australia	1 191	5 176	4	22 982	4
Western Australia	1 435	6 133	4	28 005	5
Tasmania	370	1 842	5	7 579	4
Northern Territory	140	681	5	4 026	6
Australian Capital Territory	243	1 874	8	6 509	3
<b>Australia</b>	<b>14 827</b>	<b>73 811</b>	<b>5</b>	<b>293 456</b>	<b>4</b>

(a) For persons aged 15 years and over. (b) Population aged 15 years and over.

Source: National Visitor Survey, Bureau of Tourism Research.

### 22.2 VISITOR NIGHTS(a), By State/Territory of Destination and Main Purpose of Visit—1998

State/Territory of destination	All business '000	Pleasure/holiday '000	Visiting friends/relatives '000	Other '000	Total '000
New South Wales	13 679	45 745	30 345	5 093	94 862
Victoria	7 669	26 968	18 999	2 083	55 718
Queensland	10 576	35 235	20 120	3 727	69 658
South Australia	3 231	8 858	6 299	1 843	20 230
Western Australia	6 801	12 863	6 533	3 575	29 771
Tasmania	1 199	4 981	2 655	342	9 177
Northern Territory	2 464	2 466	1 490	1 265	7 684
Australian Capital Territory	1 003	1 481	2 395	374	5 253
Other and not known	65	964	64	9	1 102
<b>Australia</b>	<b>46 685</b>	<b>139 562</b>	<b>88 898</b>	<b>18 310</b>	<b>293 456</b>

(a) By Australian residents, 15 years of age and over.

Source: National Visitor Survey, Bureau of Tourism Research.

As table 22.3 shows, in 1998 the most frequently used accommodation by domestic travellers was the property of friends or relatives (41% of visitor nights), followed by hotels, resorts and motels (23%) and caravan parks or commercial camping grounds (10%). A similar pattern occurred in New South Wales, Victoria, South Australia, Western Australia, the Northern Territory and the Australian Capital Territory. However in Queensland and Tasmania, self catering

cottages/apartments were more popular than caravan parks, accounting for 13% and 8% of visitor nights respectively.

Intrastate visits accounted for the majority of total domestic tourism visitor nights (58%). They are a particularly important component of domestic tourism for Western Australia and Victoria, where 68% and 65% respectively of domestic visitor nights in the State were accounted for by residents of the State in 1998 (table 22.4).

### 22.3 VISITOR NIGHTS, Type of Accommodation Used by State/Territory—1998

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Other and not known	Aust.
Accommodation type	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
Hotel, resort, motel, motor inn	22 117	11 263	17 768	4 295	5 320	2 585	1 446	1 772	119	66 685
Guest house/B&B	1 549	1 135	510	303	511	460	15	15	26	4 524
Self-catering cottage/apartment	8 306	3 490	9 134	1 185	2 401	729	188	212	75	25 719
Caravan park or commercial camping ground	9 763	5 427	5 211	2 046	3 589	568	975	285	141	28 006
Backpacker/hostel	439	191	401	145	314	62	88	24	5	1 669
University/school dormitory/college	949	350	146	72	69	16	51	203	0	1 856
Friends' or relatives' property	40 435	24 781	27 181	8 250	10 486	3 573	2 201	2 436	99	119 442
Own property (e.g. holiday house)	4 167	4 245	3 035	966	1 041	426	9	85	1	13 974
Privately owned boat/yacht etc.	277	201	295	73	60	104	5	—	16	1 031
Caravan or camping by side of the road, or on private (non-commercial) property	3 557	2 697	2 877	960	1 020	325	309	45	133	11 923
Cruise ship/commercial houseboat	127	135	295	246	47	11	—	—	0	862
Slept in bus/coach/train/plane	222	152	24	20	42	9	35	25	0	529
Other non-commercial property	576	516	848	446	952	24	1 073	—	0	4 436
Hospital/hospital related accommodation for relatives	483	217	248	84	108	37	22	31	0	1 229
Other/not stated	1 895	917	1 686	1 139	3 810	248	1 267	120	488	11 570
<b>Total</b>	<b>94 862</b>	<b>55 718</b>	<b>69 658</b>	<b>20 230</b>	<b>29 771</b>	<b>9 177</b>	<b>7 684</b>	<b>5 253</b>	<b>1 102</b>	<b>293 456</b>

Source: National Visitor Survey, Bureau of Tourism Research.

### 22.4 VISITOR NIGHTS, By State/Territory of Residence and States/Territories Visited—1998

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Other and not known	Aust.
State/Territory of origin	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
New South Wales	60 388	8 827	15 174	2 528	2 983	1 483	1 823	3 071	255	96 533
Victoria	14 163	36 244	11 248	3 743	3 153	2 346	1 229	867	221	73 215
Queensland	10 452	2 936	36 152	809	1 532	835	1 159	576	155	54 605
South Australia	2 580	3 483	2 970	10 694	1 413	366	1 150	315	10	22 982
Western Australia	1 886	1 411	1 490	1 453	20 101	352	679	186	448	28 005
Tasmania	630	1 441	1 140	202	231	3 689	150	82	14	7 579
Northern Territory	526	429	664	623	270	32	1 426	57	0	4 026
Australian Capital Territory	4 238	946	819	177	88	74	68	98	0	6 509
<b>Australia</b>	<b>94 862</b>	<b>55 718</b>	<b>69 658</b>	<b>20 230</b>	<b>29 771</b>	<b>9 177</b>	<b>7 684</b>	<b>5 253</b>	<b>1 102</b>	<b>293 456</b>

Source: National Visitor Survey, Bureau of Tourism Research.

In terms of numbers of visitor nights, net beneficiaries from domestic tourism (i.e. where inbound interstate visitor nights are greater than outbound interstate visitor nights) are Queensland, Western Australia, Tasmania and the Northern Territory. While Queensland is the biggest relative net beneficiary, with 1.8 times as many inbound nights as outbound nights, Victoria is the biggest relative net contributor, with 1.9 times as many outbound nights as inbound nights.

## International inbound tourism

### Characteristics

There were 4,167,210 visitors in 1998, representing a decline in arrivals of 3.5% over the 1997 level. This decline followed a growth in inbound visitors of only 3.7% in 1997, much less than the high growth rates experienced earlier in the decade (table 22.5).

In 1998, there were significant falls over 1997 in the number of visitors from most Asian countries, the largest from Korea, Indonesia and Malaysia (by 72%, 42% and 22% respectively) (table 22.6). The number of visitors from the United Kingdom increased by 21% in 1998, those from the United States of America by 13% and from New Zealand by 4%. Visitors from 'Other Europe' fell by 3% in 1998.

Japan remains Australia's most important market, accounting for 18% of total inbound visitors in 1998. This was followed by New Zealand (17%), the United Kingdom (12%), USA (9%), and 'Other Europe' (8%).

The largest category of international visitors during 1998 was those arriving for 'holiday' purposes, accounting for 53% of all visitor arrivals. In addition to these visitors, another 20% arrived for the purpose of 'visiting friends/relatives'. About 13% arrived for 'business' purposes or to attend a 'convention/conference'.

For most 'main purpose of trip' categories, New Zealand was the main source of visitors. The exceptions were 'visiting friends and relatives' where the United Kingdom provided 24% of visitors, 'holiday' where Japan provided 28% of visitors, and 'education' where Other Asia was the source of 14% of arrivals.

'Holiday' visitors were the largest category of visitors from all source countries/regions.

The long distances most international visitors have to travel to Australia contribute to a relatively long stay in this country. In 1998, 41% of visitors stayed for more than two weeks, while almost 21% stayed for more than a month (table 22.7). The relatively high number of visitors who were visiting friends or relatives (nearly 70% of whom stayed for more than two weeks) also contributed to the relatively long stay. Visitors arriving for 'education' purposes also tended to be long stayers, but their numbers were relatively small.

Visitor arrivals are only slightly seasonal, with arrival numbers in each month falling into a fairly narrow range. In 1998, most arrivals were in December, with 11% of total arrivals, while fewest arrivals were in May, with just under 7% of total arrivals (table 22.8). Outside December and May, the proportions of total arrivals ranged between 7% and 9%. A number of factors contribute to the relative lack of seasonality, primarily the attractive climate in many parts of the country throughout the whole year, and the wide diversity of source countries of visitors to Australia.

New South Wales is by far the most popular State for all categories of international visitors. In 1998, 34% of all nights spent by international visitors were spent in New South Wales (slightly down from 35% in 1997). Queensland was the next most popular State, accounting for 23% of all international visitor nights. Victoria accounted for 20% and Western Australia 12% of international visitor nights. Tasmania was the least popular State or Territory, accounting for less than 2% of international visitor nights in 1998 (table 22.9).

### 22.5 INBOUND VISITORS

Year	Visitors	Change(a)
	no.	%
1992	2 603 270	9.8
1993	2 996 220	15.1
1994	3 361 720	12.2
1995	3 725 830	10.8
1996	4 164 830	11.8
1997	4 317 870	3.7
1998	4 167 210	-3.5

(a) From previous year.

Source: *Overseas Arrivals and Departures, Australia* (3401.0).

**22.6 INBOUND VISITORS, By Country/Region of Residence and Main Purpose of Trip—1998**

Country/region of residence	Main purpose of trip							Total visitors	Change on 1997
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated		
	'000	'000	'000	'000	'000	'000	'000	'000	%
New Zealand	20.5	108.8	198.4	308.3	7.9	4.1	61.3	709.4	3.5
Other Oceania	4.5	10.2	27.1	53.3	0.5	6.4	25.7	127.6	9.1
Germany	2.1	9.4	19.3	85.2	0.8	3.2	7.4	127.4	-1.2
United Kingdom	5.0	36.8	202.3	208.9	9.3	2.8	33.6	498.6	21.4
Other Europe	11.3	33.1	71.3	154.1	3.3	9.7	42.8	325.6	-2.7
Indonesia	1.8	6.9	15.2	38.4	1.1	14.7	15.0	93.0	-42.0
Malaysia	2.9	8.0	21.5	56.8	0.6	10.3	12.0	112.1	-22.0
Singapore	4.9	25.0	29.5	158.8	0.9	11.5	16.6	247.1	3.2
Hong Kong (SAR of China)	2.6	13.9	29.5	78.0	0.4	9.6	9.4	143.4	-5.5
Japan	4.1	27.2	19.3	626.1	2.6	12.8	59.0	751.1	-7.7
Korea	2.5	7.4	14.3	28.5	0.3	6.9	6.8	66.7	-71.5
Taiwan	1.2	6.2	8.3	109.8	0.3	6.9	17.3	150.0	-2.1
Other Asia	11.3	40.7	49.1	70.9	2.2	18.4	33.8	226.3	-2.4
United States of America	18.9	75.1	75.8	158.0	3.7	11.4	31.0	373.9	13.4
Other America	4.6	9.7	28.7	41.6	1.3	3.7	10.2	99.7	10.2
Middle East and North Africa	1.4	3.6	10.8	17.2	0.3	0.9	8.0	42.1	16.6
Other Africa	2.1	8.2	22.1	24.6	0.7	1.4	11.7	70.9	26.1
Not stated	0.0	0.1	0.1	0.2	0.0	0.1	2.0	2.5	210.0
<b>Total</b>	<b>101.6</b>	<b>430.4</b>	<b>842.4</b>	<b>2 218.5</b>	<b>36.0</b>	<b>134.8</b>	<b>403.4</b>	<b>4 167.2</b>	<b>-3.5</b>

Source: Overseas Arrivals and Departures, Australia (3401.0).

**22.7 INBOUND VISITORS, By Intended Length of Stay and Main Purpose of Trip—1998**

Intended length of stay	Main purpose of trip							Total visitors	Proportion of total
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated		
	'000	'000	'000	'000	'000	'000	'000	'000	%
Under 1 week	36.6	201.2	92.4	724.3	4.4	4.6	107.7	1 171.2	28.1
1 week and under 2 weeks	43.9	120.6	170.1	754.3	4.8	12.3	183.4	1 289.3	30.9
2 weeks and under 1 month	17.3	54.9	268.3	438.0	3.6	11.2	46.8	840.1	20.2
1 month and under 2 months	2.6	21.4	170.0	160.0	2.3	7.2	25.1	388.6	9.3
2 months and under 3 months	0.5	9.9	52.8	43.4	1.6	8.5	9.2	125.9	3.0
3 months and under 6 months	0.4	13.4	61.1	51.5	3.5	23.3	14.0	167.2	4.0
6 months and under 12 months	0.3	8.9	27.8	47.0	15.8	67.8	17.4	185.0	4.4
<b>Total</b>	<b>101.6</b>	<b>430.3</b>	<b>842.4</b>	<b>2 218.6</b>	<b>36.0</b>	<b>134.8</b>	<b>403.4</b>	<b>4 167.2</b>	<b>100.0</b>

Source: Overseas Arrivals and Departures, Australia (3401.0).

**22.8 INBOUND VISITORS, By Month and Main Purpose of Trip—1998**

Month	Main purpose of trip							Total visitors	Proportion of total
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated		
	'000	'000	'000	'000	'000	'000	'000	'000	%
January	4.5	30.6	66.6	198.5	3.0	17.8	25.3	346.2	8.3
February	6.7	40.5	66.3	188.2	2.7	30.3	18.8	353.6	8.5
March	8.8	44.6	73.9	182.3	1.9	7.6	19.5	338.6	8.1
April	7.6	35.5	78.5	189.4	2.4	8.4	19.4	341.1	8.2
May	8.7	39.5	52.3	159.1	2.3	4.9	16.5	283.4	6.8
June	5.2	34.5	59.4	175.1	2.0	7.4	20.7	304.2	7.3
July	10.5	32.8	62.3	183.9	3.5	25.5	53.9	372.3	8.9
August	7.5	34.0	51.2	168.5	3.7	7.7	51.2	323.7	7.8
September	11.1	28.6	51.1	130.3	3.3	6.0	93.4	323.9	7.8
October	15.8	41.0	69.7	186.8	4.0	9.5	28.1	354.8	8.5
November	11.5	42.2	81.3	199.6	3.6	4.9	24.8	367.9	8.8
December	4.0	26.6	129.9	256.9	3.5	4.8	32.0	457.6	11.0
<b>Total</b>	<b>101.6</b>	<b>430.3</b>	<b>842.4</b>	<b>2 218.6</b>	<b>36.0</b>	<b>134.8</b>	<b>403.4</b>	<b>4 167.2</b>	<b>100.0</b>

Source: Overseas Arrivals and Departures, Australia (3401.0).

**22.9 INBOUND VISITOR NIGHTS, By State/Territory and Main Purpose of Trip—1998**

State/Territory	Main purpose of trip				Total	Total
	Business	Visiting friends/relatives	Holiday	All other reasons		
	'000	'000	'000	'000	'000	%
New South Wales	2 528	6 046	12 569	12 675	33 817	33.8
Victoria	1 410	5 412	5 312	7 780	19 915	19.9
Queensland	818	4 212	12 577	5 904	23 492	23.5
South Australia	280	1 170	1 617	1 414	4 481	4.5
Western Australia	570	3 159	4 073	4 017	11 818	11.8
Tasmania	63	539	443	625	1 670	1.7
Northern Territory	187	249	2 036	424	2 896	2.9
Australian Capital Territory	72	360	366	1 156	1 955	2.0
<b>Australia</b>	<b>5 934</b>	<b>21 148</b>	<b>38 977</b>	<b>33 994</b>	<b>100 053</b>	<b>100.0</b>

Source: International Visitor Survey, Bureau of Tourism Research.

## Expenditure

In 1998, international visitors to Australia each spent an average of \$4,153 on their trip. The highest spenders tended to be visitors from China, Europe and North America. Of these, visitors from China spent the most, an average of \$6,290, closely followed by visitors from the United States of America and Germany (an average of (\$5,890 and \$5,730 respectively). The lowest average expenditure, \$1,860 per visitor, was by visitors from New Zealand (table 22.10).

After paying for package tours and prepaid international airfares, expenditure on food, drink and accommodation was the next major expenditure item, averaging \$801 per visitor. High spenders on food, drink and

accommodation tended to be from China, Korea, Europe and North America, while visitors from Asian countries tended to be the highest spenders on shopping. Visitors from China recorded the highest average expenditure on shopping (\$810), followed by Indonesia (\$646) and Japan (\$619).

Persons visiting for 'other' reasons (e.g. education, employment, health) were the highest spenders on average, followed by business visitors. Relatively high expenditure on prepaid international airfares and food, drink and accommodation contributed to an overall high average expenditure by business visitors and those visiting for 'other' reasons. Persons visiting for 'other' reasons were also the highest spenders on shopping (table 22.11).

**22.10 AVERAGE VISITOR EXPENDITURE, By Country/Region of Residence and Expenditure Item—1998**

Country/region of residence	Items of expenditure								
	Package tours	Prepaid international airfares	Transport	Food, drink and accommodation	Shopping	Entertainment and gambling	Education fees	Other	Total
	\$	\$	\$	\$	\$	\$	\$	\$	\$
New Zealand	339	524	122	418	331	52	7	67	1 860
Germany	1 630	1 576	601	1 256	386	72	34	177	5 732
United Kingdom	1 108	1 858	334	1 124	393	105	7	130	5 060
Other Europe	1 174	1 701	437	1 347	455	116	175	212	5 617
Indonesia	144	728	312	1 168	646	215	1 284	673	5 170
Malaysia	200	531	180	697	438	171	833	183	3 233
Singapore	416	526	165	778	547	120	613	297	3 462
Hong Kong (SAR of China)	600	839	251	896	499	255	473	222	4 034
Japan	2 219	225	83	370	619	63	138	61	3 778
Korea	411	625	325	1 209	560	343	898	243	4 614
Taiwan	1 635	325	129	523	602	95	372	130	3 811
Thailand	258	585	241	1 002	562	251	855	258	4 012
China	1 144	803	368	1 275	810	309	898	683	6 290
Other Asia	281	1 160	269	854	595	101	554	177	3 991
United States of America	1 506	2 229	347	1 022	377	126	97	185	5 889
Canada	828	2 000	405	1 156	389	117	42	161	5 098
Other countries	391	1 489	247	785	536	111	352	271	4 182
<b>All countries</b>	<b>1 071</b>	<b>1 036</b>	<b>242</b>	<b>801</b>	<b>480</b>	<b>110</b>	<b>243</b>	<b>170</b>	<b>4 153</b>

Source: International Visitor Survey, Bureau of Tourism Research.

**22.11 AVERAGE VISITOR EXPENDITURE, By Expenditure Item and Main Purpose of Trip—1998**

Expenditure items	Main purpose of trip				Total
	Business	Visiting friends and relatives	Holiday	All other reasons	
	\$	\$	\$	\$	\$
Package tours	352	251	1 695	467	1 071
Prepaid international airfares	1 999	1 332	669	1 240	1 036
Transport	288	172	202	464	242
Food, drink and accommodation	1 202	465	626	1 653	801
Shopping	365	461	489	570	480
Entertainment and gambling	115	84	102	170	110
Education fees	9	55	29	1 558	243
Other	197	94	74	639	170
<b>All items</b>	<b>4 527</b>	<b>2 913</b>	<b>3 876</b>	<b>6 761</b>	<b>4 153</b>

Source: International Visitor Survey, Bureau of Tourism Research.

### Inbound tour operators

Of the 2.4 million overseas 'holiday' visitors who arrived in Australia during 1995–96, inbound tour operators handled 1.6 million (68%). These overseas visitors coming to Australia on package tours paid a total of \$1.4b to Australian inbound tour operators for the Australian content of their tour.

Passengers from Japan accounted for 42% of the total passengers involved and 56% of the total value of gross invoices (i.e. all amounts received for ground content, e.g. coach transfers, accommodation, meals, cruises, etc., received in Australia). Passengers from Asia (excluding Japan) represented 33% of total passengers and accounted for 21% of the total value of gross invoices.

Europe (including the United Kingdom and Ireland) accounted for 14% of passengers and 14% of the total value of gross invoices, the Americas for 7% of passengers and 8% of the total value of gross invoices, and New Zealand and the South Pacific for 3% of passengers and 1% of the total value of gross invoices.

At 30 June 1996, inbound tour operators employed 3,000 persons full-time and 720 persons part-time in Australia. In addition, they employed 410 persons full-time overseas.

### Australia's tourism marketing expenditure overseas

During 1996–97, Australian tourism-related organisations (excluding the Australian Tourist Commission) spent \$280m marketing their products overseas. Of this total expenditure, 29% was directed towards the Japanese market, 27% towards other Asian countries, 20% towards

the United Kingdom and Europe, and 15% towards the United States and Canada.

Of total tourism marketing expenditure overseas, the majority (69%) was independent expenditure, while 17% was spent in cooperation with the Australian Tourist Commission and 14% was in cooperation with other organisations.

Of the total expenditure, 23% was by inbound tour operators, 18% by accommodation operators, 13% by State tourism authorities and 5% by regional tourist bodies. Other operators (including airlines, exhibition organisers, incentive travel operators, and professional conference organisers) accounted for 30% of total tourism marketing expenditure overseas.

### International outbound tourism

While the number of foreign visitors coming to Australia declined in 1998, the number of Australian residents visiting overseas has been increasing steadily in recent years (table 22.12). Until 1996 the annual percentage increase in Australians visiting overseas was smaller than the increase in visitor arrivals. However, in 1997 the percentage increase in Australians travelling abroad was greater than the increase in international visitors coming to Australia (7% compared to 4%), and this trend has continued in 1998 with an 8% increase (outbound visitors) compared with a 4% fall (inbound visitors). Nevertheless, the number of inbound visitors remained higher than the number of outbound visitors, by just over one million persons. Consequently, tourism continues to improve the net contribution of the travel item to Australia's balance on current account.



## 22.12 AUSTRALIAN RESIDENTS TRAVELLING ABROAD

Year	no.	Change
		%
1992	2 276 260	8.4
1993	2 267 080	-0.4
1994	2 354 310	3.8
1995	2 518 620	7.0
1996	2 731 970	8.5
1997	2 932 760	7.3
1998	3 161 060	7.8

Source: *Overseas Arrivals and Departures, Australia (3401.0)*.

Australians travel abroad to visit a wide variety of main destinations. As table 22.13 shows, the most popular main destination is New Zealand, accounting for 15% of Australian residents visiting abroad in 1998. This was followed by Indonesia, the main destination for over 11% of Australian residents visiting abroad, and the United

Kingdom the main destination for nearly 11%. The United States of America and Other America combined were the main destination for almost 13% of Australian residents visiting abroad.

Nearly half (47%) of Australian residents visiting abroad in 1998 went for 'holiday' purposes, while a further 24% went to 'visit friends/relatives'. For all destination countries/regions, the largest category of Australian visitors was 'holiday', except in the Philippines and 'Other Asia' where 'visiting friends/relatives' was the largest category. Other destinations which attracted a relatively high proportion of Australians 'visiting friends/relatives' were Middle East/North Africa, 'Other Europe', New Zealand, the United Kingdom, and Italy.

Australians travelling for 'business' purposes accounted for 16% of Australian outbound travellers. Their main destinations were New Zealand, the United States, 'Other Asia', and Hong Kong.

## 22.13 AUSTRALIANS TRAVELLING ABROAD, By Country/Region of Main Destination and Main Purpose of Trip—1998

Country/region of main destination	Main purpose of trip							Total	Change on 1996
	Convention/conference	Business	Visiting friends/relatives	Holiday	Employment	Education	Other and not stated		
	'000	'000	'000	'000	'000	'000	'000	'000	%
Fiji	3.5	8.5	10.4	70.1	0.7	0.8	5.2	99.2	30.5
New Zealand	17.0	92.9	154.0	171.0	5.4	2.8	27.0	470.1	15.5
Other Oceania	3.0	23.6	14.3	78.2	14.1	2.3	8.6	144.1	8.9
Italy	1.8	6.5	17.8	32.1	0.4	1.2	3.2	63.0	0.9
United Kingdom	8.4	33.0	116.8	156.2	8.1	3.9	16.9	343.3	6.5
Other Europe	12.3	32.6	89.7	106.6	4.1	5.0	14.9	265.2	4.3
Indonesia	4.7	26.4	13.1	282.6	6.2	2.8	13.8	349.6	12.5
Malaysia	5.5	23.8	23.0	49.4	3.0	1.0	6.2	111.9	13.7
Philippines	1.2	9.2	26.7	16.1	0.6	0.2	3.3	57.4	-5.0
Singapore	6.5	35.3	18.2	48.7	5.4	1.0	7.5	122.6	16.6
Thailand	3.1	13.0	8.9	103.0	2.2	1.0	4.7	135.8	52.4
China	2.2	22.4	21.0	28.3	2.0	2.1	4.1	82.0	13.4
Hong Kong (SAR of China)	3.6	36.2	38.2	51.7	8.4	1.9	7.5	147.4	-5.6
Other Asia	5.9	48.1	85.8	68.0	7.4	5.7	12.8	233.8	2.0
United States of America	29.4	68.2	51.8	144.3	5.6	6.1	17.2	322.7	-8.3
Other America	4.3	8.4	23.3	34.1	1.7	1.3	4.0	77.0	-0.2
Middle East and North Africa	1.6	6.3	27.1	28.9	3.2	1.2	4.9	73.3	7.3
Other Africa	2.2	7.9	13.0	22.8	2.0	0.6	3.4	51.8	-2.4
Not stated	0.1	0.8	0.2	2.2	0.9	0.1	6.9	11.0	69.5
<b>Total</b>	<b>116.4</b>	<b>503.0</b>	<b>753.3</b>	<b>1 494.2</b>	<b>81.3</b>	<b>41.0</b>	<b>172.0</b>	<b>3 161.1</b>	<b>7.8</b>

Source: *Overseas Arrivals and Departures, Australia (3401.0)*.



The long distances for Australian residents travelling to other countries are reflected in the relatively long periods of stay abroad. In 1998, only 12% stayed abroad less than a week, while 33% stayed away for over a month (table 22.14). In addition to distances involved in getting to destination countries, the high proportion of Australians 'visiting friends/relatives' also contributed to long periods of stay, as such travellers traditionally tend to stay in destination countries longer than other types of visitors. In 1998, 58% of such visitors stayed away for over a month.

While the number of Australian residents departing for visits abroad varies from month to month, there are not large seasonal fluctuations in departures. Table 22.15 shows that the largest numbers of departures in 1998 were in September and December (both 10%), while February recorded the lowest number of departures (6%).

#### 22.14 AUSTRALIANS TRAVELLING ABROAD, By Intended Length of Stay and Main Purpose of Trip—1998

	Main purpose of trip							Total	Proportion of total
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated		
Intended length of stay	'000	'000	'000	'000	'000	'000	'000	'000	%
Under 1 week	29.7	168.5	43.5	113.8	4.6	3.5	22.4	386.0	12.2
1 week and under 2 weeks	46.9	137.4	109.6	536.0	7.5	6.5	49.6	893.5	28.3
2 weeks and under 1 month	28.9	104.5	199.7	431.2	11.2	9.2	36.0	820.6	26.0
1 month and under 2 months	8.5	40.3	205.3	237.9	10.3	4.9	23.8	531.0	16.8
2 months and under 3 months	1.7	19.8	81.6	76.6	5.5	3.3	11.2	199.6	6.3
3 months and under 6 months	0.6	17.1	74.4	56.8	13.0	4.1	11.6	177.6	5.6
6 months and under 12 months	0.2	15.4	39.2	41.7	29.3	9.4	17.4	152.7	4.8
<b>Total</b>	<b>116.4</b>	<b>503.0</b>	<b>753.3</b>	<b>1 494.2</b>	<b>81.3</b>	<b>41.0</b>	<b>172.0</b>	<b>3 161.1</b>	<b>100.0</b>

Source: Overseas Arrivals and Departures, Australia (3401.0).

#### 22.15 AUSTRALIANS TRAVELLING ABROAD, By Month of Departure and Main Purpose of Trip—1998

	Main purpose of trip							Total	Proportion of total
	Convention/ conference	Business	Visiting friends/ relatives	Holiday	Employment	Education	Other and not stated		
Month	'000	'000	'000	'000	'000	'000	'000	'000	%
January	7.9	37.6	47.1	91.5	9.1	4.4	9.8	207.4	6.6
February	7.2	43.3	41.6	86.7	7.5	1.8	8.8	196.9	6.2
March	12.0	51.4	53.4	112.2	5.6	2.6	9.4	246.6	7.8
April	10.4	42.7	63.4	127.0	6.1	3.3	9.8	262.5	8.3
May	12.6	51.3	66.2	125.2	6.3	2.4	8.9	272.8	8.6
June	10.0	41.9	71.8	138.0	5.9	3.9	10.7	282.3	8.9
July	4.6	38.9	59.6	133.5	8.1	3.2	23.2	271.1	8.6
August	10.9	39.5	54.2	126.7	7.4	3.1	23.9	265.6	8.4
September	13.0	41.3	63.0	160.9	5.5	5.9	23.7	313.5	9.9
October	14.0	44.9	53.5	135.6	6.3	2.4	11.4	268.0	8.5
November	9.0	45.1	64.1	110.3	6.1	4.1	17.9	256.5	8.1
December	4.9	25.3	115.4	146.7	7.4	3.9	14.6	318.1	10.1
<b>Total</b>	<b>116.4</b>	<b>503.0</b>	<b>753.3</b>	<b>1 494.2</b>	<b>81.3</b>	<b>41.0</b>	<b>172.0</b>	<b>3 161.1</b>	<b>100.0</b>

Source: Overseas Arrivals and Departures, Australia (3401.0).

## Tourist accommodation

Estimates of the origin of guests staying in hotels, motels and guest houses in Australia during 1994–95 indicate that overseas visitors accounted for 23% of room nights occupied in these establishments. This compares with 37% for interstate visitors and 40% for intrastate visitors (based on table 22.16).

Queensland and the Northern Territory had the highest proportions of overseas visitor nights to total visitor nights, each having 29%. Next highest were New South Wales with 25% and Western Australia with 20%, followed by Victoria (17%), the Australian Capital Territory (13%), South Australia (12%) and Tasmania (8%). The strong popularity of New South Wales and Queensland is reflected in the fact that 70% of overseas guest nights in hotels, motels and guest houses were spent in these States.

The Australian Capital Territory, Tasmania and the Northern Territory were the most dependent on interstate visitors, who accounted for a half or more of those guest nights. At the other end of the scale, in New South Wales and Queensland, interstate visitors accounted for only a third of total guest nights in hotels, motels and guest houses.

As shown in table 22.17, at December 1998 there were 182,061 rooms available in Australia in hotels, motels, guest houses and serviced apartments having 15 or more rooms or units. This was an increase of 5% over the number available at December 1997. The number of serviced apartments having 15 or more rooms or units increased by 17% (to 552) over the same period. During 1998, the supply of accommodation in hotels, motels, guest houses and serviced apartments (all with 15 or more rooms or units) exceeded demand (the number of room nights occupied) with room occupancy rates of 62% for hotels, 54% for motels, and 60% for serviced apartments.

**22.16 ORIGIN OF GUESTS STAYING IN HOTELS, MOTELS AND GUEST HOUSES WITH FACILITIES—1994–95**

State/Territory	Origin of guests			Total
	Intrastate	Interstate	Overseas	
	'000	'000	'000	'000
New South Wales	5 076	3 949	2 963	11 988
Victoria	2 511	2 158	986	5 655
Queensland	3 616	3 054	2 715	9 385
South Australia	845	902	233	1 980
Western Australia	1 425	1 128	643	3 196
Tasmania	326	638	89	1 053
Northern Territory	241	576	332	1 149
Australian Capital Territory	36	706	110	852
<b>Total</b>	<b>14 076</b>	<b>13 111</b>	<b>8 071</b>	<b>35 258</b>

Source: *Experimental Estimates of the Origin of Guests, Hotels, Motels and Guest Houses, Australia, 1994–95 (9501.0)*.

**22.17 TOURIST ACCOMMODATION(a)—1998**

		Quarter ended				Year ended
	Unit	March	June	September	December	December 1998
LICENSED HOTELS WITH FACILITIES(b)						
Establishments	no.	750	750	751	747	747
Guest rooms	no.	69 124	70 019	70 414	70 802	70 802
Bed spaces	no.	185 113	186 675	190 182	191 147	191 147
Room occupancy rates	%	61.6	57.5	62.5	64.5	61.6
Bed occupancy rates	%	37.4	34.9	38.4	39.2	37.5
Gross takings from accommodation	\$'000	505 731	458 529	515 942	550 378	2 030 580
MOTELS AND GUEST HOUSES WITH FACILITIES(b)						
Establishments	no.	2 377	2 376	2 387	2 386	2 386
Guest rooms	no.	83 427	83 402	84 322	84 701	84 701
Bed spaces	no.	249 154	249 467	250 991	252 044	252 044
Room occupancy rates	%	53.9	52.0	54.4	54.7	53.7
Bed occupancy rates	%	32.2	30.2	32.3	32.3	31.7
Gross takings from accommodation	\$'000	314 800	301 598	334 949	331 903	1 283 251
SERVICED APARTMENTS(b)						
Establishments	no.	482	502	522	552	552
Guest rooms	no.	21 643	22 671	24 332	26 558	26 558
Bed spaces	no.	77 423	80 897	85 570	93 563	93 563
Room occupancy rates	%	62.4	55.6	63.2	60.6	60.5
Bed occupancy rates	%	38.3	33.3	38.9	37.5	37.0
Gross takings from accommodation	\$'000	134 968	120 958	147 171	160 874	563 970
TOTAL HOTELS, MOTELS AND SERVICED APARTMENTS(b)						
Establishments	no.	3 609	3 628	3 660	3 685	3 685
Guest rooms	no.	174 194	176 092	179 068	182 061	182 061
Bed spaces	no.	511 690	517 039	526 743	536 754	536 754
Room occupancy rates	%	58.0	54.6	58.7	59.4	57.7
Bed occupancy rates	%	35.0	32.4	35.6	35.7	34.7
Room nights occupied	'000	9 056	8 725	9 639	9 904	37 325
Gross takings from accommodation	\$'000	955 499	881 085	998 062	1 043 155	3 877 800

(a) Comprising establishments with 15 or more rooms or units. (b) For definitions see the source below.

Source: *Tourist Accommodation, Australia, December quarter 1998* (8635.0).

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## Introduction

Transport can be described broadly as the movement of goods or people from an origin to a destination. It is one of the most fundamental aspects of an advanced economy. Buildings cannot be constructed without transportation of materials and people, food must be transported from farms to shops, and people must travel to get to and from work, recreation and other facilities. Transport has enormous economic and social impact, generates substantial employment and contributes significantly to Gross Domestic Product, with numerous support industries ranging from automotive manufacturers to travel agencies. There are also social costs of transport—such as road accidents, traffic congestion, fuel emissions, aircraft noise pollution and shipping oil spills. Information about all aspects of transport and its support industries is vital to effective planning by governments and industry.

## Road transport

### Length of the road system

The most recent information available on lengths of roads open for general traffic in Australia is shown in table 23.1 below. The information is classified according to broad surface groups as defined by the respective States and Territories.

## Registered motor vehicles

Censuses of registered motor vehicles have been conducted in respect of 31 December 1955 and 1962; 30 September 1971, 1976, 1979, 1982, 1985, 1988 and 1991; 30 June 1993; 31 May 1995; and 31 October 1996, 1997 and 1998.

As shown in table 23.2, the number of motor vehicles steadily increased in every Motor Vehicle Census since 1995.

There were 11,737,923 motor vehicles (excluding motor cycles, tractors, plant and equipment, caravans and trailers) registered in Australia at 31 October 1998 (tables 23.2 and 23.3). This represents an increase of 3.4% since 31 October 1997.

During 1996 the National Heavy Vehicle Registration Scheme (NHRS) was introduced in all States/Territories. This means that vehicles registered under this scheme are charged uniform fees in each State/Territory.

Table 23.4 shows the average age of vehicle by type of vehicle. The average age of the Australian motor vehicle fleet remained unchanged from 1997 to 1998, at 10.7 years, halting a long term increase in average. The average age of passenger vehicles (81% of the vehicle fleet) declined by 0.1 years to 10.4 years as at 31 October 1998.

**23.1 LENGTHS OF ROADS OPEN FOR GENERAL TRAFFIC, By Road Surface and State/Territory—At 30 June**

	NSW(a) 1999	Vic.(b) 1999	Qld 1997	SA 1999	WA(c) 1999	Tas. 1999	NT(d) 1999	ACT 1999
Surface of roads	km	km	km	km	km	km	km	km
Bitumen or concrete	88 553	73 795	66 130	27 117	48 154	10 143	6 638	2 490
Gravel, crushed stone or other improved surface	92 746	52 002	50 807	40 939	55 824	12 817	7 888	133
Formed only	(e)	29 658	44 949	20 926	27 776	700	7 082	—
Cleared only	n.a.	(f)	15 131	7 470	14 321	(f)	9 580	—
<b>Total</b>	<b>181 299</b>	<b>155 455</b>	<b>177 017</b>	<b>96 452</b>	<b>146 075</b>	<b>23 660</b>	<b>31 188</b>	<b>2 623</b>

(a) Excludes Lord Howe Island, forestry controlled roads or crown roads. (b) Excludes roads coming under the responsibility of the Department of Conservation and Natural Resources. (c) Excludes approximately 25,300kilometres of forestry roads. (d) Excludes roads managed by local government bodies. Approximately 1,000kilometres of roads were transferred to NT Government as Aboriginal Strategic Roads from 1 July 1997. (e) Included in gravel, crushed stone or other improved surface. (f) Included with Formed only.

Source: Derived mainly from Road and Traffic Authorities and local government sources in each State and Territory.



**23.2 MOTOR VEHICLES ON REGISTER**

	Passenger vehicles(a)	Light commercial vehicles	Trucks(b)	Buses	Total (excludes motor cycles)	Motor cycles
Motor vehicle census years(c)	'000	'000	'000	'000	'000	'000
1995	8 660.6	1 527.2	410.9	52.2	<b>10 650.9</b>	296.6
1996	9 021.5	1 601.6	415.4	58.8	<b>11 097.3</b>	303.9
1997	9 239.5	1 632.2	418.4	61.1	<b>11 351.3</b>	313.1
1998	9 560.6	1 686.4	426.9	64.0	<b>11 737.9</b>	328.8

(a) Includes campervans. (b) Includes rigid, articulated and non-freight carrying trucks. (c) The 1995 data as at 31 May, other years as at 31 October.

Source: Motor Vehicle Census, Australia (9309.0).

**23.3 MOTOR VEHICLE CENSUS—31 October 1998**

2018 - MOTOR VEHICLE CENSUS - 31 October 2018									
State/Territory	Passenger vehicles(a)	Light commercials	Trucks				Buses	Total(b)	Motor cycles
			Rigid	Articulated	Non-freight carrying				
	'000	'000	'000	'000	'000	'000	'000	'000	
NSW	2 967.4	481.6	108.5	16.8	3.3	16.5	<b>3 594.1</b>	88.5	
Vic.	2 581.8	390.8	85.0	17.3	5.6	14.5	<b>3 095.1</b>	82.3	
Qld	1 685.7	377.9	66.3	12.4	2.8	13.5	<b>2 158.6</b>	70.3	
SA	839.6	125.3	26.6	5.9	1.8	3.9	<b>1 003.2</b>	27.9	
WA	1 010.7	209.8	45.2	7.3	2.7	9.5	<b>1 285.3</b>	41.9	
Tas.	240.3	59.7	9.8	1.5	0.9	2.2	<b>314.5</b>	8.2	
NT	66.9	24.3	3.2	0.8	0.2	2.9	<b>98.3</b>	3.9	
ACT	168.1	17.1	2.4	0.3	0.1	1.0	<b>188.9</b>	5.8	
Aust.	9 560.6	1 686.4	347.2	62.3	17.5	64.0	<b>11 737.9</b>	328.8	

(a) Includes campervans. (b) Excludes motor cycles, tractors, plant and equipment, caravans and trailers.

Source: Motor Vehicle Census, Australia (9309.0).

**23.4 ESTIMATED AVERAGE AGE OF THE VEHICLE FLEET(a), By State of Registration—31 October 1998**

Type of vehicle	State of registration 1998									Aust. 1997
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust. 1998	
Passenger vehicles	9.4	10.9	10.3	11.9	10.5	11.9	9.0	10.1	10.4	10.5
Campervans	16.9	18.8	16.1	18.6	19.5	18.1	15.7	18.1	18.1	17.6
Light commercial vehicles	10.6	12.4	11.1	12.6	11.5	12.9	9.8	10.8	11.5	11.4
Rigid trucks with GVM 3.5 and less than 4.5 tonnes	11.1	14.2	11.9	14.7	13.5	16.6	6.7	11.8	12.5	12.2
Rigid trucks with GVM 4.5 tonnes and over	13.9	16.7	14.1	17.3	16.5	16.4	12.1	10.7	15.3	15.1
Articulated trucks	11.6	11.8	11.2	10.9	12.8	10.7	11.5	8.6	11.6	11.5
Non-freight carrying trucks	13.6	14.8	12.0	13.6	16.8	16.0	11.6	15.3	14.3	13.8
Buses	8.9	10.2	9.5	10.9	7.6	13.2	6.4	8.5	9.3	9.1
Motor cycles	9.5	10.0	10.9	(b)9.9	11.4	10.2	8.6	9.9	10.2	10.2
<b>Total</b>	<b>9.7</b>	<b>11.3</b>	<b>10.6</b>	<b>12.1</b>	<b>10.9</b>	<b>12.3</b>	<b>9.2</b>	<b>10.2</b>	<b>10.7</b>	<b>10.7</b>

(a) Excludes plant and equipment, caravans and trailers. (b) Year of manufacture is frequently not reported for South Australian motor cycles.

Source: Motor Vehicle Census, Australia (9309.0).

**23.5 MOTOR VEHICLES(a) ON REGISTER PER 1,000 OF POPULATION, By State/Territory**

States/Territory	Motor vehicle Census years						
	1988	1991	1993	1995	1996	1997	1998
NSW	524	525	529	545	556	563	581
Vic.	598	622	642	637	669	677	682
Qld	567	569	593	614	624	627	645
SA	616	637	638	653	667	671	693
WA	608	653	665	679	694	706	725
Tas.	634	643	661	676	686	686	684
NT	(b)389	507	497	520	529	530	538
ACT	511	556	591	604	613	637	631
<b>Aust.</b>	<b>567</b>	<b>582</b>	<b>595</b>	<b>606</b>	<b>614</b>	<b>630</b>	<b>644</b>

(a) Excludes motor cycles, tractors, plant and equipment, caravans and trailers. (b) 1988 data understated the number of vehicles on register.

Source: Motor Vehicle Census, Australia (9309.0).

The number of registered motor vehicles (excluding motor cycles) per 1,000 of population has generally followed the same upward trend as the total number of motor vehicles. At 31 October 1998, there were 644 vehicles per 1,000 population, up from 630 in the previous year, an increase of 2.2% (table 23.5).

### Registrations of new motor vehicles

Annual registrations of new vehicles processed by motor vehicle registration authorities in all States and Territories are shown in tables 23.6 and 23.7. The number of registrations in 1998–99 was the highest ever recorded.

**23.6 REGISTRATIONS OF NEW MOTOR VEHICLES, Australia**

Year	Passenger vehicles(a) no.	Light commercial vehicles(b) no.	Trucks				Total (excludes motor cycles) no.	Motor cycles no.
			Rigid no.	Articulated no.	Non-freight carrying(c) no.	Buses no.		
1993–94	475 981	80 720	9 812	3 147	795	3 814	<b>574 269</b>	17 425
1994–95	528 502	88 840	11 392	4 815	867	4 493	<b>638 909</b>	20 505
1995–96	531 778	86 666	9 726	2 909	1 074	4 376	<b>636 529</b>	22 345
1996–97	557 962	88 204	9 470	3 145	1 099	3 972	<b>663 852</b>	22 842
1997–98	654 697	96 762	11 387	4 006	1 247	3 746	<b>771 845</b>	26 765
1998–99	671 513	103 568	13 182	3 973	1 194	3 636	<b>797 066</b>	30 070

(a) Formerly described as motor cars and station wagons. From 1 July 1991 includes forward control passenger vehicles of less than 10 seats. (b) Combination of utilities and panel vans. From 1 July 1991 includes cab chassis vehicles 3.5 tonnes gross vehicle mass or less. (c) Formerly 'Other truck type vehicles'.

Source: New Motor Vehicle Registrations, Australia, Preliminary (9301.0) and unpublished statistics.

**23.7 REGISTRATIONS OF NEW MOTOR VEHICLES, By State/Territory—1998–99**

State/Territory	Passenger vehicles no.	Light commercial vehicles(a) no.	Trucks				Total (excludes motor cycles) no.	Motor cycles no.
			Rigid no.	Articulated no.	Non-freight carrying no.	Buses no.		
NSW	232 902	33 852	4 535	963	190	911	<b>273 353</b>	8 629
Vic.	177 754	23 015	3 169	1 283	442	800	<b>206 463</b>	8 601
Qld	118 400	24 521	3 031	893	282	759	<b>147 886</b>	5 970
SA	43 459	6 301	695	389	81	179	<b>51 104</b>	2 066
WA	66 574	10 823	1 265	333	152	624	<b>79 771</b>	3 160
Tas.	12 359	2 393	251	78	27	37	<b>15 145</b>	568
NT	6 324	1 598	178	25	17	263	<b>8 405</b>	475
ACT	13 741	1 065	58	9	3	63	<b>14 939</b>	601
Aust.	671 513	103 568	13 182	3 973	1 194	3 636	<b>797 066</b>	30 070

(a) Combination of utilities and panel vans. Includes cab chassis vehicles of 3.5 tonnes gross vehicle mass or less.

Source: Unpublished statistics, New Motor Vehicle Registrations.

## Use of motor vehicles

The Survey of Motor Vehicle Use has been undertaken periodically by the ABS since 1963, including every three years between 1976 and 1991, and in 1995. The Survey is currently being completed for the 1997–98 financial year. The following are some of the main findings from the 1995 survey.

Motor vehicles in Australia are estimated to have travelled a total of 166,514 million km in the 12 months ended September 1995, a rise of 11% over the corresponding period in 1991. Of the total distance travelled, 34% was for business purposes, 24% for travel to and from work, and 43% for private purposes. Passenger vehicles accounted for 74% of total distance travelled, freight carrying vehicles (including light commercial vehicles, rigid trucks and articulated trucks) 24%, and motor cycles and buses both 1% (based on table 23.8).

The average distance travelled in the 12 months by all vehicles (including vehicles which reported zero distance travelled) was 15,200 km, an increase of about 2% over the 12 months ended September 1991. Excluding vehicles that did not travel, the average distance travelled increased to 15,600 km, as table 23.9 shows. The table also shows the average kilometres travelled by different types of vehicle, and where they travelled.

Load carrying vehicles (light commercial vehicles, rigid trucks and articulated trucks) performed 119,227 million tonne-kilometres (table 23.10), with vehicles registered in New South Wales, Victoria and Queensland accounting for about 70% of the total (27,713 million, 30,571 million and 25,666 million tonne-kilometres, respectively).

### 23.8 TOTAL KILOMETRES TRAVELLED, By Type of Vehicle and Purpose—Year Ended 30 September 1995

Type of vehicle	Business				Purpose	
	Laden	Unladen	Total	Total to and from work	Private	Total
	mill. km	mill. km	mill. km	mill. km	mill. km	mill. km
Passenger vehicles	..	..	26 116	33 158	64 417	123 691
Motor cycles	..	..	177	579	769	1 526
Light commercial vehicles	11 558	4 342	(a)16 918	5 190	5 642	27 751
Rigid trucks	4 740	1 650	6 391	209	125	6 725
Articulated trucks	3 778	1 285	5 063	24	7	5 094
Other truck types	..	..	241	3	5	249
Buses	..	..	1 406	24	49	1 479
<b>Total</b>	<b>20 076</b>	<b>7 277</b>	<b>56 312</b>	<b>39 188</b>	<b>71 015</b>	<b>166 514</b>

(a) Includes total business travel for some light commercial vehicles where the laden and unladen business kilometres could not be obtained.

Source: Survey of Motor Vehicle Use, Australia, Preliminary (9202.0).

### 23.9 AVERAGE KILOMETRES TRAVELLED(a), By Type of Vehicle and Area of Operation—Year Ended 30 September 1995

Type of vehicle	Area of operation(b)					
	Capital city(c)	Provincial urban	Other areas of State or Territory	Total within State of registration	Interstate	Australia
	'000 km	'000 km	'000 km	'000 km	'000 km	'000 km
Passenger vehicles	10.7	6.6	6.7	14.1	3.7	14.7
Motor cycles	5.1	2.7	3.1	5.2	2.9	5.4
Light commercial vehicles	14.7	11.1	11.7	17.4	5.8	18.0
Rigid trucks	21.5	14.8	12.1	19.9	10.6	20.5
Articulated trucks	30.6	24.2	52.3	67.0	70.9	89.9
Non-freight carrying types	21.4	11.6	8.6	16.0	5.1	16.1
Buses	26.4	14.6	21.3	30.9	16.9	32.8
<b>Total</b>	<b>11.4</b>	<b>7.3</b>	<b>8.0</b>	<b>14.9</b>	<b>4.9</b>	<b>15.6</b>

(a) As this table relates to actual vehicle use, vehicles which travelled zero distance are excluded from the calculation of averages.

(b) Includes the average distance travelled by all vehicles registered in a State/Territory within the specified area. (c) Includes all of the ACT in Capital City and all of the NT in Other areas of State or Territory.

Source: Survey of Motor Vehicle Use, Australia, Preliminary (9202.0).

### 23.10 TOTAL TONNE-KILOMETRES(a), By Type of Vehicle and State of Registration—Year Ended 30 September 1995

Type of vehicle	State of registration								
	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	mill. t-km	mill. t-km	mill. t-km	mill. t-km	mill. t-km	mill. t-km	mill. t-km	mill. t-km	mill. t-km
Light commercial vehicles	1 217	1 202	1 246	330	582	105	43	74	4 799
Rigid trucks	7 737	5 599	5 291	1 749	3 473	630	305	259	25 044
Articulated trucks	18 758	23 770	19 129	10 362	11 201	2 081	3 583	500	89 384
<b>Total</b>	<b>27 713</b>	<b>30 571</b>	<b>25 666</b>	<b>12 442</b>	<b>15 256</b>	<b>2 816</b>	<b>3 932</b>	<b>833</b>	<b>119 227</b>

(a) Total tonne-kilometres are the product of reported average load and total business kilometres travelled while laden.

Source: Survey of Motor Vehicle Use, Australia, Preliminary (9202.0).

**23.11 DRIVERS' AND RIDERS' LICENCES, By State/Territory**

	NSW(a)	Vic.	Qld	SA	WA(d)	Tas.	NT	ACT
Type of licence	no.	no.	no.	no.	no.	no.	no.	no.
<b>30 JUNE 1998</b>								
Motor vehicle	4 027 296	3 055 847	n.a.	972 891	n.a.	266 693	84 871	191 044
Motor cycle	377 180	204 332	351 002	152 139	n.a.	140	54	129
Combined	(b)374 279	n.a.	n.a.	n.a.	n.a.	29 379	21 287	22 064
<b>Total</b>	<b>4 404 476</b>	<b>3 260 179</b>	<b>(c)2 158 587</b>	<b>1 123 129</b>	<b>n.a.</b>	<b>296 212</b>	<b>105 476</b>	<b>213 237</b>
<b>30 JUNE 1999</b>								
Motor vehicle	4 082 899	3 134 004	n.a.	906 752	n.a.	267 988	91 164	196 743
Motor cycle	383 858	214 663	355 274	153 507	n.a.	148	48	(e)22 688
Combined	(b)381 131	n.a.	n.a.	n.a.	n.a.	30 013	21 773	n.a.
<b>Total</b>	<b>4 466 757</b>	<b>3 348 667</b>	<b>(c)2 211 000</b>	<b>1 060 259</b>	<b>n.a.</b>	<b>298 149</b>	<b>112 985</b>	<b>(f)219 431</b>

(a) Includes learner licences. (b) Not included in the total. (c) Includes persons with only motor vehicle classes and persons with motor vehicle and motor cycle classes. (d) Data are not available for number of licences. The total for classes of licences was 1,852,595 at 30 June 1999. (e) Includes combined licences. (f) Excludes learner licences.

Source: Motor Registry in each State and Territory.

**Drivers' and riders' licences**

Table 23.11 shows the number of licences for motor vehicle drivers and motor cycle riders as at 30 June 1998 and 1999.

each year since 1993, with the exception of 1995, despite the number of vehicles per head of population increasing over this period (see table 23.5).

**Road traffic accidents**

As table 23.12 shows, the number of persons killed in Australia as a result of road traffic accidents fell marginally (0.3%) from 1997 to 1998. The number of persons killed has dropped

Table 23.13 shows, for 1998, the number of road traffic fatalities per 100,000 population and per 10,000 motor vehicles registered. Table 23.14 shows the number of road traffic casualties for 1997.

**23.12 ROAD TRAFFIC ACCIDENTS INVOLVING FATALITIES, By State/Territory**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Year	no.	no.	no.	no.	no.	no.	no.	no.	no.
<b>ACCIDENTS INVOLVING FATALITIES</b>									
1993	518	381	357	191	190	47	40	11	<b>1 735</b>
1994	557	346	367	145	195	51	36	15	<b>1 712</b>
1995	563	371	408	163	194	53	56	14	<b>1 822</b>
1996	538	382	338	162	220	53	58	17	<b>1 768</b>
1997	528	346	320	123	184	29	66	17	<b>1 603</b>
1998	494	349	257	152	202	47	54	20	<b>1 580</b>
<b>PERSONS KILLED</b>									
1993	581	435	396	218	209	58	44	12	<b>1 953</b>
1994	647	378	422	159	211	59	41	17	<b>1 934</b>
1995	620	418	456	181	209	57	61	15	<b>2 017</b>
1996	581	417	385	181	247	64	72	23	<b>1 970</b>
1997	579	377	358	148	197	32	60	17	<b>1 768</b>
1998	560	391	279	168	226	48	69	22	<b>1 763</b>

Source: Federal Office of Road Safety, Road Fatalities Australia, 1998.

**23.13 ROAD TRAFFIC FATALITIES, By State/Territory—1998**

State/Territory	Number	Persons killed	
		Per 100,000 population(a)	Per 10,000 motor vehicles registered(b)
New South Wales	560	8.8	1.5
Victoria	391	8.4	1.2
Queensland	279	8.1	1.3
South Australia	168	11.3	1.6
Western Australia	226	12.3	1.7
Tasmania	48	10.2	1.5
Northern Territory	69	36.3	6.8
Australian Capital Territory	22	7.0	1.1
<b>Australia</b>	<b>1 763</b>	<b>9.4</b>	<b>1.5</b>

(a) Estimated resident population at 30 June 1998. (b) Number of registered motor vehicles and motor cycles (excluding tractors, plant and equipment) at 31 October 1998.

Source: Road Statistics Data—Federal Office of Road Safety, Road Fatalities Australia, 1998; Population Data—Estimated Resident Population, Australia, June 1998 (3201.0); Registered Vehicle Data—Motor Vehicle Census, Australia, 31 October 1998 (9309.0).

**23.14 ROAD TRAFFIC ACCIDENTS INVOLVING CASUALTIES(a), By State/Territory—1997**

State/Territory	Number	Persons injured	
		Per 100,000 of population(b)	Per 10,000 motor vehicles registered(c)
New South Wales	6 141	98	17
Victoria	5 781	126	19
Queensland	4 145	122	19
South Australia	1 509	102	15
Western Australia	2 899	161	23
Tasmania	420	89	13
Northern Territory	402	215	41
Australian Capital Territory	222	72	11
<b>Australia</b>	<b>21 519</b>	<b>116</b>	<b>19</b>

(a) Accidents reported to the police or other relevant authority which occurred in public thoroughfares and which resulted in death within thirty days or personal injury to the extent that the injured person was admitted to hospital. (b) Estimated resident population at 30 June 1997. (c) Number of registered motor vehicles (excluding tractors, plant and equipment) at 31 October 1997.

Source: Road Statistics Data—Federal Office of Road Safety, Road Injury Australia, 1997; Population Data—Estimated Resident Population, Australia (3201.0); Registered Vehicle Data—Motor Vehicle Census, Australia, 31 October 1997 (9309.0).

## Rail Transport

### Reform of the rail industry

The rail industry in Australia has undergone extensive reform through the 1990s. This has involved both corporatisation and privatisation of passenger and freight operations and rail networks.

The government-owned railway operators that remain are State Rail (passenger) (NSW), FreightCorp (intrastate freight) (NSW); Queensland Rail; Westrail (WA); TransAdelaide (SA); and the National Rail Corporation Ltd.

The National Rail Corporation was incorporated as a commercial operating company in September 1991, with a charter to take over all interstate rail freight business and related

functions and assets from government-owned railways. This transfer occurred over a three-year transition period ending on 31 January 1996. Its shareholders are the Commonwealth Government, and the Governments of New South Wales and Victoria. Commercial operations began on 5 April 1993.

In 1997 Australian National (AN) was sold to three consortia. SA Freight (AN's South Australian freight operations) was sold to a consortium led by American shortline operator Genesee and Wyoming Railroad (with Bankers Trust and Australian companies Transfield Maintenance and Evans Deakin Industries). Tasrail (AN's Tasmanian operations) was sold to the Australian Transport Network, a consortium of Wisconsin Central (a US regional railway based in Wisconsin), Tranz Rail (New Zealand railways),

Fay Richwhite and Berkshire Partners (merchant bankers). AN Passenger (operating 'The Ghan', the 'The Indian Pacific' and 'The Overland') was sold to the Great Southern Railway (Macquarie Bank with British rail operators GB Railways and Serco).

In 1999 in Victoria V/line Freight Corporation was sold to Freight Victoria, a consortium backed by Florida based Rail America. V/line Passenger (country network) was franchised to UK based National Express for 10 years, Bayside Trains (metro) for 15 years and Swanston Trams for 12 years. Hillside Trains (metro) (Vic) was franchised to French based Melbourne Transport Enterprises for 15 years, and Yarra Trams was franchised to MetroLink for 12 years.

Major reform of the track network has involved corporatisation. In the case of the Tasmanian network, privatisation has included both operations and ownership of the track.

## Australia Track Network

Table 23.15 shows the route-kilometres operated by the government-owned part of the Australia Track Network, and table 23.16 shows the total network, including private railways and tram/light rail networks, categorised by the gauge of the track.

The government rail systems include routes in more than one State, and the Victorian system extends into New South Wales. Therefore the system route-kilometres shown in table 23.15 do not represent route-kilometres exclusively within each State and Territory.

The diversity of track gauge reflects the historical development of State infrastructure. It also reflects private development, for example the 4,150 route-kilometres of narrow gauge associated with the Queensland sugar industry.

## Rail passenger operations

The number of passengers carried by rail, and the revenue generated, are shown in table 23.17 for private and government operators combined. Rail passenger operations are dominated by urban passenger travel (98.3% in 1997–98). There are no rail passenger services in Tasmania.

**23.15 GOVERNMENT RAILWAYS, Route-Kilometres Operated**

	NSW	Vic.	Qld	SA(a)	WA	Australian National(b)	Australia
As at 30 June	km	km	km	km	km	km	km
1994	7 451	5 107	9 357	120	5 583	6 235	<b>33 853</b>
1995	7 451	4 917	9 452	120	5 583	6 152	<b>33 675</b>
1996	7 451	4 872	9 442	120	5 369	6 118	<b>33 372</b>
1997	7 469	4 952	9 458	120	5 139	5 961	<b>33 099</b>
1998	7 309	5 147	9 496	3 722	5 369	(c). .	<b>31 043</b>

(a) Suburban only until 1998. Country routes were transferred to Australian National in 1978. The 1998 figure includes the Australian National owned track. (b) Australian National was privatised in 1997. (c) The remaining government owned track from Australian National is included in SA.

Source: Australasian Railway Association Inc.

**23.16 AUSTRALIAN TRACK NETWORK, Route Kilometres Operated—at 30 June 1998(a)**

	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
Gauge	km	km	km	km	km	nkm	km
Narrow							
610mm	—	—	4 150	—	—	—	4 150
1067mm	—	—	9 364	854	3 985	860	15 063
Standard 1435mm	7 583	1 727	117	4 200	2 676	—	16 303
Broad 1600mm	—	3 620	—	408	—	—	4 028
Dual	32	40	34	18	172	—	296
<b>Total</b>	<b>7 615</b>	<b>5 387</b>	<b>13 665</b>	<b>5 480</b>	<b>6 833</b>	<b>860</b>	<b>39 840</b>

(a) Includes tram and light rail.

Source: Australasian Railway Association Inc.

**23.17 RAIL PASSENGER OPERATIONS 1997–98(a)**

	NSW	Vic.	Qld	SA	WA	GSR(b)	Tourism(c)	Aust.
PASSENGERS ('000)								
Urban	268 500	229 789	41 500	7 983	28 300	—	—	576 072
Non-urban	1 800	6 694	843	—	250	250	300	10 137
<b>Total</b>	<b>270 300</b>	<b>236 483</b>	<b>42 343</b>	<b>7 983</b>	<b>28 550</b>	<b>250</b>	<b>300</b>	<b>586 209</b>
REVENUE (\$'000)								
Urban	370 300	257 000	68 438	n.a.	108 500	—	—	On.a.
Non-urban	63 700	30 000	45 236	—	n.a.	n.a.	n.a.	On.a.
<b>Total</b>	<b>434 000</b>	<b>287 000</b>	<b>113 674</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>On.a.</b>

(a) Includes tram and light rail. (b) Great Southern Railway operates the 'Overland', 'Ghan' and 'Indian Pacific' interstate passenger services Melbourne–Adelaide, Melbourne–Alice Springs and Sydney–Perth. (c) Tourist and historic rail operations.

Source: Australasian Railway Association Inc.

**Rail freight operations**

The number of tonnes of freight carried by rail, and the revenue generated, are shown in table 23.18 for private and government operators combined.

**23.18 RAIL FREIGHT OPERATIONS 1997–98**

	Tonnes	Revenue
	'000	\$'000
NSW	83 183	(a)637 000
Vic.	5 452	99 964
Qld	120 386	1 100 085
SA	6 400	n.a.
WA	32 825	256 657
Tas.	3 200	n.a.
Interstate(b)	10 700	(a)495 000
Iron Ore	154 048	n.a.
Sugar	37 000	n.a.
<b>Aust.</b>	<b>452 674</b>	<b>n.a.</b>

(a) Estimate. (b) Freight operations across States.

Source: Australasian Railway Association Inc.

**Water transport****The Australian fleet**

New South Wales and Queensland account for the majority of ships registered in Australia. The majority of ships are used for non-commercial purposes (see table 23.19). There were 8,413 ships on the Register at 30 June 1999, an increase of 167 compared with 8,246 ships registered at 30 June 1998. There were 296 ship registrations during the year.

Of the 62 ships which comprised the major Australian trading fleet (2,000 dead weight tonnes (DWT) and over) at 30 June 1997, most operated on coastal routes (see table 23.20). The minor trading fleet (150 to 2000 DWT) consisted of 14 ships. The total Australian fleet consisted of 31 bulk carriers, 17 tankers, 4 containers, 9 general cargo, 14 RoRo cargo-landing barges, and one RoRo passenger ship. The largest registered coastal ship was the *Iron Whyalla* (141,475 DWT).

**23.19 SHIPS REGISTERED(a) IN AUSTRALIA—30 June 1999**

Location	Nature of registration					
	Recreational	Fishing	Government	Demise chartered(b)	Commercial and trading(c)	Total
	no.	no.	no.	no.	no.	no.
New South Wales	1 682	291	4	7	237	2 221
Victoria	621	203	—	2	99	925
Queensland	1 517	734	19	9	373	2 652
South Australia	280	309	1	—	40	630
Western Australia	583	410	—	2	142	1 137
Tasmania	233	214	2	—	56	505
Northern Territory	258	61	1	—	23	343
<b>Australia</b>	<b>5 174</b>	<b>2 222</b>	<b>27</b>	<b>20</b>	<b>970</b>	<b>8 413</b>

(a) Australian-owned commercial or trading ships of 24 metres or more in tonnage length. All ships, regardless of tonnage length, must be registered before departing on a voyage from Australia or from a foreign port where there is an Australian diplomatic representative. (b) These ships are not necessarily engaged in trade or commerce. (c) Relates to ships used for trading and commercial purposes. Some of these ships are less than 24 metres in tonnage length.

Source: Australian Maritime Safety Authority.



### 23.20 SUMMARY OF THE AUSTRALIAN TRADING FLEET OF SHIPS 150 GROSS TONNES OR MORE—30 June 1997

Ships	Number	Dead weight tonnage (DWT)	Gross tonnes
Major Australian fleet(a)			
Coastal			
Australian registered	38	1 327 523	890 327
Overseas registered	4	22 448	25 259
Total coastal fleet	42	1 349 971	915 586
Overseas			
Australian registered	19	1 713 997	1 260 427
Overseas registered	1	94 347	54 880
Total overseas fleet	20	1 808 344	1 315 307
Total	62	3 158 315	2 230 893
Minor trading ships(b)			
Australian registered	12	4 797	5 128
Overseas registered	2	1 456	2 120
<b>Australian trading fleet</b>	<b>76</b>	<b>3 164 568</b>	<b>2 238 141</b>

(a) 2,000 DWT and over. (b) Minor trading ships are between 150 and 2,000 DWT.

Source: Department of Transport and Regional Services.

### Coastal shipping cargo

Table 23.21 shows the gross weight of shipping cargo loaded at an Australian port for discharge at another Australian port. The statistics distinguish interstate and intrastate movements and cover the five year period 1993–94 to 1997–98.

Table 23.22 shows the major commodities that are loaded in the Australian coastal shipping movements for the same five year period. This shows that the majority of cargo shipped between Australian ports (on average around 65% in millions of tonnes and 80% in billions of tonne kilometres) is for major bulk commodities.

### 23.21 COASTAL CARGO LOADED, Gross Weight, 1993–94 to 1997–98

Year	Loaded		
	Interstate	Intrastate	Total(a)
1993–94	30 769	14 505	<b>45 274</b>
1994–95	33 692	15 498	<b>49 190</b>
1995–96	31 982	15 815	<b>47 798</b>
1996–97	32 581	16 562	<b>49 144</b>
1997–98	34 322	18 200	<b>52 522</b>

(a) Totals do not always add due to rounding.

Source: Australian port authorities.

### 23.22 COASTAL CARGO LOADED, By Major Commodity—1993–94 to 1997–98

Year	Iron ore	Bauxite/alumina	Crude oil	Petroleum products	Other cargo	Total(a)
TONNES (MILLIONS)						
1993–94	8.1	9.6	6.1	6.5	15.6	<b>45.3</b>
1994–95	8.4	10.2	7.2	6.3	17.1	<b>49.2</b>
1995–96	9.0	9.6	7.6	6.5	15.1	<b>47.8</b>
1996–97	8.3	10.1	8.3	6.9	15.6	<b>49.1</b>
1997–98	8.2	10.3	8.9	7.2	18.0	<b>52.5</b>
TONNE KILOMETRES (BILLIONS)						
1993–94	37.3	21.5	10.7	9.2	20.2	<b>98.8</b>
1994–95	38.7	22.5	13.2	10.3	24.5	<b>109.2</b>
1995–96	40.4	21.1	16.3	9.7	18.6	<b>106.1</b>
1996–97	38.1	22.2	18.8	12.9	20.7	<b>112.7</b>
1997–98	40.9	22.4	13.5	10.3	19.6	<b>106.8</b>

(a) Totals do not always add due to rounding.

Source: Australian port authorities.

## Air Transport

### International activity

#### International scheduled passenger service operators

At 31 December 1998 there were 55 international scheduled airlines operating regular scheduled passenger air services to and from Australia.

Continental Micronesia, Flight West Airlines, Lan Chile, Lufthansa German Airlines, Swissair and United Parcel Service commenced services to and from Australia, while China Southern Airlines, MBA Pty Ltd, Middle East Airlines, National Jet Systems and Philippine Airlines ceased services to and from Australia.

Qantas operates international and domestic flights. See the section *Domestic activity* for details of the Qantas fleet. British Airways purchased 25% of Qantas Airways Limited on 10 March 1993. The company was floated on the Australian Stock Exchange on 22 June 1995. Qantas is a member of the Oneworld global alliance of airlines.

Ansett Australia operated its first international flight in its own right on 11 September 1993. Air New Zealand purchased 50% of Ansett Australia on 1 October 1996. Ansett Australia is a member of the Star global alliance of airlines.

#### International non-scheduled services

Passenger and freight charter policies in Australia encourage inbound tourism and freight carriage by non-scheduled services, particularly over routes not served by the scheduled carriers. Over recent years, there has been a significant increase in the passenger charter market, with airlines from the United Kingdom, New Zealand and Canada operating services during the summer period.

#### International traffic

Particulars of scheduled international airline traffic to and from Australia during 1998 are shown in table 23.23. Note that 'Australia' includes Norfolk Island. These figures do not include traffic between Norfolk Island and other parts of Australia. Table 23.24 shows freight tonnes carried between overseas and Australian cities (city pairs) and table 23.25 shows the number of airline passengers (passenger traffic) passing through Australia's international airports.

During 1998, passenger traffic grew by 1.2% over 1997, compared with a 6.1% increase recorded for 1997 over 1996. Freight carried declined by 2.3% compared with an increase of 11% recorded between 1997 and 1996. Although passenger traffic increased overall during 1998, declines were most marked in Brisbane (–1.9%) and Cairns (–7.7%), due to the downturn in Asian tourists visiting Australia.

**23.23 SCHEDULED INTERNATIONAL AIRLINE TRAFFIC TO AND FROM AUSTRALIA(a)—Year ended December 1998**

Type of traffic	Flights(b)(c) no.	Passengers no.	Freight tonnes	Mail tonnes
<b>TRAFFIC TO AUSTRALIA</b>				
Qantas Airways Limited	12 907	2 599 464	86 784	4 009
Ansett Australia	1 519	291 464	9 781	427
Flight West Airlines	90	1 894	—	—
National Jet Systems	50	1 329	21	10
Other airlines	25 175	4 259 363	206 057	9 251
<b>All airlines</b>	<b>39 741</b>	<b>7 153 514</b>	<b>302 643</b>	<b>13 697</b>
<b>TRAFFIC FROM AUSTRALIA</b>				
Qantas Airways Limited	12 957	2 585 233	95 777	5 495
Ansett Australia	1 518	286 494	8 405	155
Flight West Airlines	90	1 286	—	—
National Jet Systems	50	1 383	—	—
Other airlines	24 657	4 210 259	225 084	4 090
<b>All airlines</b>	<b>39 272</b>	<b>7 084 655</b>	<b>329 265</b>	<b>9 740</b>

(a) Australia and Norfolk Island. (b) Includes Qantas flights using aircraft leased from other airlines and vice versa. (c) The difference between to/from numbers arises because some outward flights are operated as non-scheduled, and so are not counted in the above table.

Source: Department of Transport and Regional Services.

**23.24 FREIGHT CARRIED, By City Pairs—Year ended December**

	1996	1997	1998
	tonnes	tonnes	tonnes
Auckland/Sydney	42 210	50 610	54 849
Singapore/Sydney	36 250	37 403	38 758
Hong Kong/Sydney	35 802	36 945	36 789
Singapore/Melbourne	29 300	33 910	34 935
Auckland/Melbourne	33 735	32 849	32 199
Hong Kong/Melbourne	23 068	27 787	23 821
Los Angeles/Sydney	28 240	25 732	26 500
Tokyo/Sydney	21 389	23 611	19 895
Singapore/Perth	20 799	22 784	26 160
Auckland/Brisbane	12 597	15 300	16 324
Other city pairs	299 432	339 916	321 677
<b>All city pairs</b>	<b>582 822</b>	<b>646 847</b>	<b>631 907</b>

Source: Department of Transport and Regional Services.

**23.25 PASSENGER TRAFFIC THROUGH AUSTRALIAN INTERNATIONAL AIRPORTS—Year ended December**

	1996	1997	1998
Airport	no. of passengers	no. of passengers	no. of passengers
Sydney	6 477 744	6 840 696	6 934 052
Melbourne	2 193 309	2 373 135	2 489 495
Brisbane	2 192 110	2 294 900	2 251 240
Perth	1 292 127	1 399 514	1 434 077
Cairns	719 396	745 110	688 058
Adelaide	205 863	208 890	223 035
Darwin	147 888	171 319	177 773
Norfolk Island	14 797	16 176	15 704
Coolangatta(a)	463	13 822	14 519
Christmas Island(b)	14 513	3 895	2 712
Hobart	5 103	3 689	2 690
Port Hedland	1 536	3 209	4 398
Broome(c)	2 338	260	—
Townsville(d)	—	240	416
<b>Total</b>	<b>13 267 187</b>	<b>14 074 855</b>	<b>14 238 169</b>

(a) International operations commenced in December 1996. (b) International operations commenced in November 1993, ceased in February 1997, and recommenced in October 1997. (c) International operations commenced in January 1996, and ceased in February 1997. (d) International operations ceased in October 1994, and recommenced in May 1997.

Source: Department of Transport and Regional Services.

## Domestic activity

The Commonwealth Government deregulated domestic aviation in Australia and opened the nation's interstate air services to free competition from 31 October 1990.

### Major domestic airlines as at 30 June 1998

The Ansett group's fleet consisted of 69 aircraft, including 22 Boeing 737-300, 20 A320-200 Airbus and 9 Boeing 767-200 jet aircraft. Regional airlines in the Ansett Group are Kendell Airlines, Aeropelican and Skywest Airlines, which together had a fleet of 35 aircraft.

Qantas and Qantas Airlink operated a fleet of 110 aircraft including 22 Boeing 737-400, 21 Boeing 747-400, 21 Boeing 767-300, 16 Boeing 737-300 and 12 Bae 146 jet aircraft. Regional airlines in the Qantas Group are Eastern Australia Airlines, Southern Australia Airlines and Sunstate Airlines. These airlines operated 28 aircraft.

### Regional operators

At 31 December 1998, 40 regional operators provided regular public transport air services to around 200 ports in Australia.

More than half the regional airline fleet comprises turbine engine and jet aircraft carrying up to around ninety passengers. During 1998, regional operators carried an estimated 4.8 million passengers.

### Scheduled domestic services

Statistics on all major domestic airline services and the number of domestic airline passengers passing through airports are shown in table 23.26. Table 23.27, which has been revised from previous years, shows revenue passengers on board with domestic and regional airlines at principal airports over the calendar years 1993 to 1998.

#### 23.26 DOMESTIC AIRLINE ACTIVITY

	Unit	1993–94	1994–95	1995–96	1996–97	1997–98
Domestic airlines						
Hours flown	no.	398 337	437 793	454 365	445 567	439 848
Aircraft departures	no.	477 316	505 580	507 212	484 072	478 466
Total revenue passengers(a)	no.	21 302 395	22 789 674	23 678 307	23 375 317	23 574 788
Cargo on board(b)	tonnes	163 135	169 446	172 761	190 680	192 770
Passenger kilometres performed	'000	22 674 835	24 625 411	26 191 426	26 357 069	26 774 140
Cargo tonne kilometres(b)	'000	198 281	204 903	207 760	233 659	2 383 990
Total tonne kilometres	'000	2 239 017	2 421 190	2 564 988	2 605 795	2 648 072
Seat kilometres available	'000	29 660 834	33 129 881	35 639 503	35 402 870	35 466 723
Revenue passenger load factor	%	76.4	74.3	73.5	74.4	75.5
Revenue weight load factor	%	61.1	59.0	57.8	58.2	58.7
Regional airlines						
Total revenue passengers(a)	no.	3 504 101	3 783 244	4 160 984	(c)4 712 143	(c)4 844 077
Cargo on board(b)	tonnes	2 807	2 804	2 782	(c)2 983	(c)3 122

(a) The unit of measurement is traffic on board (which includes transit traffic). (b) Includes freight and mail. (c) Provisional data include estimates.

Source: Department of Transport and Regional Services.

#### 23.27 REVENUE PASSENGERS ON BOARD WITH MAJOR DOMESTIC AND REGIONAL AIRLINES AT PRINCIPAL AIRPORTS(a)

	1993	1994	1995	1996	1997	1998(b)
Airport	no.	no.	no.	no.	no.	no.
Sydney	11 089 393	12 341 917	13 213 332	13 901 702	14 070 134	14 276 173
Melbourne	8 646 360	9 618 621	10 481 179	11 097 264	11 227 713	11 429 141
Brisbane	5 616 706	6 386 956	6 924 345	7 375 444	7 470 083	7 438 368
Adelaide	2 909 895	3 174 741	3 419 694	3 559 829	3 636 073	3 782 303
Perth	2 201 145	2 531 929	2 782 852	3 066 332	3 152 995	3 235 524
Canberra	1 431 091	1 591 868	1 739 064	1 735 758	1 788 064	1 805 223
Hobart	717 091	770 250	828 986	852 506	831 969	855 176
Darwin	551 260	646 580	743 291	821 584	822 583	853 721
Cairns	1 440 759	1 690 499	1 844 027	1 926 655	1 918 238	1 915 717
Coolangatta	1 679 855	1 871 875	1 998 539	2 043 393	1 918 063	1 888 644
Townsville	557 535	607 143	654 503	670 254	685 989	703 964
Launceston	486 986	540 710	574 762	592 443	558 995	535 944

(a) The unit of measurement is passengers on board. It may include passengers in transit. (b) Data are provisional.

Source: Department of Transport and Regional Services.

Other aviation matters

In addition to scheduled services, a wide range of other activities is undertaken by the aviation industry, including business flying, aerial agriculture, charter, training and private flying. Charter operations and training have, in recent years, made up almost 50% of general aviation hours flown. Charter operations involve the use of aircraft in non-scheduled operations for the carriage of passengers and cargo for hire or reward.

Airports

At 30 June 1998, there were 268 licensed airports in Australia and its external territories. Of these 13 were operating as international airports serving scheduled international airlines (see table 23.25). The majority of licensed airports were owned and operated by local councils, State government departments and private companies. The remaining airports were owned and operated by the Department of Defence or leased by the Commonwealth to private sector companies or government corporations.

By 30 June 1998 the Commonwealth Government completed the sale of 14 airports owned and operated by the Federal Airports Corporation, and it corporatised the remaining Federal airports (Sydney basin and Essendon) in July 1998.

Air transport registrations and licences in force in Australia

At 30 June 1999 there were 11,340 aircraft registered in Australia (9,960 of these were aeroplanes and helicopters).

At 26 August 1999 there were 34,632 holders of a current aeroplane pilot licence, including 17,488 private pilots, 5,461 commercial and senior commercial pilots and 5,246 air transport pilots (there were also 6,438 student pilots). In addition, there were 2,271 holders of a current helicopter pilot licence, of whom 594 were private pilots, 1,267 commercial and senior commercial pilots and 410 air transport pilots. There were also 92 commercial balloon, 959 flight engineer and 24 navigator licences in force.

Accidents and casualties

As table 23.28 shows, the number of air transport accidents fell in 1998 compared with 1997. However the number of fatalities increased.

23.28 AIR TRANSPORT(a), Accidents and Fatalities(b)

Year	Accidents	Fatalities
	no.	no.
1993	319	67
1994	268	64
1995	269	51
1996	243	49
1997	254	40
1998(c)	225	54

(a) Includes airlines, general aviation and sport aviation. (b) Includes accidents involving Australia-registered aircraft occurring overseas and accidents involving foreign-registered aircraft occurring in Australia. (c) Data are provisional.

Source: Department of Transport and Regional Services, Bureau of Air Safety Investigation.

Government transport organisations

General

Australian Transport Council

The Australian Transport Council was established on 11 June 1993, subsuming the functions of the Australian Transport Advisory Council, and incorporates meetings of the Ministerial Council for Road Transport.

It comprises Commonwealth, State, Territory and New Zealand Ministers responsible for transport, roads, marine and ports matters. The Papua New Guinea Minister for Transport and Works, and the Australian Local Government Association are also represented on the Council as observers.

The Council meets bi-annually and its primary role is to review and coordinate various aspects of transport policy, development and administration. The Council initiates discussion and reports on issues raised by Council members, and provides advice to governments on the coordination and integration of all transport and road policy issues at a national level.

Bureau of Transport Economics

The Bureau of Transport Economics is a centre for applied economic research in the Commonwealth Department of Transport and Regional Services. It undertakes studies and investigations that contribute to an improved understanding of the factors influencing the efficiency and growth of the transport sector and the development of effective transport policies.

## Road

### AUSTROADS

AUSTROADS is the national association of road transport and traffic authorities. It provides strategic direction for the development, management and use of Australia's road system through consultation and discussion with peak industry bodies. The functions of AUSTROADS are coordination of research, and preparation of guides and standards for improvements in, and harmonisation of, practices within an agreed national policy framework. Its membership comprises the six Australian State and two Territory road authorities, the Commonwealth Department of Transport and Regional Services, the Australian Local Government Association and Transit New Zealand.

### ARRB Transport Research Ltd

ARRB Transport Research is a leading provider of value added technology and research services addressing land transport problems. The company's National Strategic Research Program, performed under contract to AUSTROADS, keeps Australia at the leading edge of developments in the road transport industry.

ARRB Transport Research employs over 140 people who form a multi-disciplinary pool of scientists, engineers, and specialist technical and support staff for infrastructure design, asset management, construction quality, materials testing, traffic operations, safety analysis, environmental sustainability, and freight issues.

The company has its headquarters in Melbourne, with extensive laboratory and testing facilities, and an office in Perth to service customers in Western Australia and the Indian Ocean Rim.

In addition to addressing Australia's transport problems, ARRB Transport Research has a rapidly growing export business, with products sold in over 60 countries.

### National Road Transport Commission

The National Road Transport Commission (NRTC) is a small, independent body established as a result of the Special Premiers' Conference in 1991. Its charter is to develop nationally uniform or consistent policies and practices that improve the safety and efficiency of road transport, and reduce its environmental impacts and the costs of administration. The NRTC and its national

transport legislation were to have expired in January 1998. However, following an independent review, Heads of Government have now agreed to the NRTC being extended until 2004.

Transport reforms are developed in close consultation with Commonwealth Government, the State and Territory Governments, the road transport industry, road user groups and other interested persons and organisations, for approval by Australia's Transport Ministers.

## Rail

### Australasian Railway Association

The Australasian Railway Association was founded in 1994 and provides leadership in promoting a competitive rail industry for the benefit of its members and the wider community. It currently represents 127 members from both the public and private sectors. It is now established as the peak industry body for the rail industry in Australian and New Zealand.

## Water

### Australian Maritime Safety Authority (AMSA)

AMSA is a government business enterprise established under the *Australian Maritime Safety Authority Act 1990* on 1 January 1991. AMSA is responsible for maritime safety regulatory activities in Australia and provision of the Australian marine navigational aids network. It operates the Marine Rescue Coordination Centre, which coordinates major maritime search and rescue activities in the Australian region. It is also responsible for oil pollution prevention and cleanup, and for the registration of Australian vessels.

## Air

### Airservices Australia

Airservices Australia and the Civil Aviation Safety Authority were established by the Commonwealth Parliament in July 1995, replacing the former Civil Aviation Authority, an independent government business enterprise established under the *Civil Aviation Act 1988*.

Airservices Australia's core function is to ensure the safe and efficient use of Australian airspace. It provides a number of services to Australia's aviation industry, including air traffic control, aeronautical information services, airport rescue and fire fighting, search and rescue, and

navigation services. Airservices is also required to ensure, as far as practicable, that the environment is protected from the effects of the use and operation of aircraft.

Airservices Australia has a prominent role in the implementation of the global Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) system, which uses satellite technology to provide a more efficient air traffic system.

### **Civil Aviation Safety Authority (CASA)**

CASA maintains, enhances and promotes the safety of civil aviation in the interests of the Australian public. CASA's focus is to work with industry to reduce aviation safety risks, the priority being the protection of fare paying passengers. This is achieved through effective safety regulation, and by encouraging a greater acceptance by industry of its obligation to maintain high safety standards.

### **Federal Airports Corporation**

Following the disposal of the airports operated by the Federal Airports Corporation (FAC), the FAC ceased operations on 24 September 1998. The Department of Transport and Regional Services (DoTRS) became responsible for the management of the residual administrative issues. Additional information on the FAC cessation can be found in the 1998–99 FAC Annual Report, included as an annexure within the 1998–99 DoTRS Annual Report.

### **International organisations**

Australia is one of the 185 members (as at 23 August 1999) of the International Civil Aviation Organization (ICAO) and is a member of the 33 member governing Council. Australia is also represented on the 15 member Air Navigation Commission which is responsible for drawing up and putting to ICAO, international standards and procedures for the safety and efficiency of air navigation. In addition, Australia participates in

the South Pacific Forum, the Directors General of Civil Aviation for Asia and the Pacific, as well as aviation related work undertaken in APEC.

### **International agreements**

As at 30 June 1999, Australia has air services agreements of full treaty status with 41 countries. Renegotiation of capacity and route rights has occurred under most of these to accommodate traffic growth on international routes to and from Australia. Agreements with 11 countries will be upgraded to treaty status once the draft agreements are incorporated into domestic law. Australia has four air services arrangements of less than treaty status.

These agreements and arrangements enable airlines of Australia and its bilateral partners to operate a network of international air services to and from Australia.

### **International Air Services Commission**

The International Air Services Commission (IASC) is an independent statutory authority responsible for the allocation of capacity negotiated under air services arrangements to existing and prospective Australian international carriers.

The Commission was established on 1 July 1992 following the decision to allow Australian airlines other than Qantas to fly internationally. The Government decided that the process of allocating capacity to Australian airlines should be at arms length from the negotiation function.

The IASC works within a legislative and policy framework laid down by the Government. Under the *International Air Services Act 1992*, the IASC's objectives are to foster competition, consumer benefits, tourism, trade and the maintenance of competitive Australian airlines.

When considering applications for capacity, the Commission takes into account public benefit criteria outlined in a policy statement issued by the Minister for Transport and Regional Services.



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Australian Transport Safety Bureau <http://www.atsb.gov.au>

AUSTROADS, <http://203.35.96.131/austroads>

Bureau of Transport Economics, <http://www.dotrs.gov.au/bte>

Civil Aviation Safety Authority, <http://www.casa.gov.au>

Commonwealth Department of Transport and Regional Services, <http://www.dotrs.gov.au>

National Road Transport Commission, <http://www.trtc.gov.au>





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## Introduction

This chapter addresses the performance of the closely related industries involved in communication services and information technology. It also canvasses the use of information technology by businesses, farms and households. It concludes with an article summarising the findings of a study of the information technology skills of Australian school students.

## The communication services industries

The communication services industries encompass telecommunication services, and postal and courier services. These industries comprise the Communication Services Division of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC).

The telecommunication services industry is made up of businesses mainly providing telecommunication services to the public by wire, cable or radio. The primary activities of the industry include cable and communication channel services, network communication services, operation of radio relay stations, satellite communication services, telecommunications, telephone services, teleprinter and telex services, and operation of television relay stations. The industry excludes businesses which manufacture telecommunications equipment, businesses engaged in cable laying and transmission line construction, and those providing secretarial services (e.g. personalised telephone answering services or message delivery services). Also, the ABS classifies the provision of radio and television services (as distinct from the operation of radio and television relay stations) as part of the Cultural and Recreational Services Division of the ANZSIC. Information on radio and television broadcasting, including the role of the National Transmission Agency, the Australian Broadcasting Corporation, the Special Broadcasting Service and commercial radio and television services, is included in *Chapter 12, Culture and recreation*.

### 24.1 COMMUNICATION SERVICES INDUSTRIES, Structure and Performance

	Unit	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Industry structure							
Businesses at 30 June	no.	889	1 400	2 133	2 824	3 694	5 222
Employment at 30 June	'000	116	117	127	138	126	120
Income statement							
Sale of goods and services	\$m	15 937	17 463	19 883	21 709	23 723	24 973
Less cost of sales	\$m	5 876	6 447	7 583	9 314	11 141	10 718
Trading profit	\$m	10 060	11 016	12 300	12 395	12 582	14 256
Plus interest	\$m	112	99	154	179	171	141
Plus other operating income	\$m	374	167	252	624	79	293
Less labour costs	\$m	5 225	5 529	6 451	6 298	6 612	6 175
Less depreciation	\$m	2 188	2 348	2 572	2 793	3 028	3 092
Less other operating expenses	\$m	77	172	200	144	443	437
Earnings before interest and tax	\$m	3 057	3 233	3 483	3 963	2 749	4 987
Less interest expenses	\$m	918	762	615	724	743	942
Operating profit before tax	\$m	2 139	2 471	2 868	3 239	2 006	4 045
Total assets	\$m	28 088	26 713	32 094	34 432	37 989	38 166
Total liabilities	\$m	14 797	13 457	17 814	17 756	23 628	23 113
Net worth	\$m	13 291	13 256	14 280	16 676	14 361	15 053
Capital expenditure	\$m	3 821	3 328	4 488	6 261	5 369	5 362
Gross operating surplus	\$m	5 125	5 676	6 153	6 625	8 893	12 480
Industry gross product(a)	\$m	10 350	11 205	12 605	12 923	15 505	..
Industry value added(a)	\$m	..	..	..	..	..	18 655

(a) Starting with estimates for 1997–98, under the new international standard, the 1993 edition of the System of National Accounts (SNA93), the contribution to GDP by industries is measured by 'industry value added' (IVA). Estimates for IVA measure the value added by an industry to the intermediate inputs used by that industry. Previously the corresponding contribution to GDP was measured by 'industry gross product' (IGP). Further information on the changes to international standards can be found in the Information Paper: Implementation of Revised International Standards in the Australian National Accounts (5251.0).

Source: *Business Operations and Industry Performance, Australia, Preliminary, 1997–98* (8142.0).

Table 24.1 shows key measures of industry structure and performance for the Communication Services Division as a whole, compiled from the ABS's annual Economic Activity Survey. As can be seen from the table, by some measures the communication services sector overall has been one of the fastest growing in Australia. For example, sales grew from \$16b in 1992–93 to almost \$25b in 1997–98. In terms of other measures, growth has been uneven, though most indicators for 1997–98 were strongly positive:

- growth in the number of businesses increased from 31% in 1996–97 to 41% in 1997–98;
- employment grew strongly (by 9%) in each of 1994–95 and 1995–96, but fell by 9% in 1996–97 and 5% in 1997–98;
- growth in gross operating surplus rose from 34% in 1996–97 to 40% in 1997–98;
- pre-tax profit, which had fallen by 38% in 1996–97, recovered strongly in 1997–98 with a 102% increase;
- net worth grew by 5% in 1997–98, following a 14% fall in 1996–97;
- capital spending fluctuated, falling by 13% in 1993–94, rising by 35% in 1994–95 and by 40% in 1995–96, falling by 14% in 1996–97 and remaining almost unchanged in 1997–98; and
- the gross product of the sector (the former measure of unduplicated output and of an industry sector's contribution to GDP) grew by 8% in 1993–94 and 12% in 1994–95, by only 3% in 1995–96 but by 20% in 1996–97. For 1997–98 and future years the measure of unduplicated output has changed somewhat in line with international standards (see footnote (a) to table 24.1). The new measure, industry value added, still measures an industry's contribution to GDP. Industry value added for the communication services industries was a strong \$18.6b in 1997–98.

## The information and communications technologies sector

The information and communications technologies (ICT) sector is that part of the economy which produces information and telecommunications goods and services. As such it overlaps with part of the Communication Services Division discussed above, but encompasses other industries as well. The ICT sector in Australia includes telecommunication services (see above), computer services, and selected manufacturing and wholesale trade industries.

Table 24.2 provides statistics for a selection of industries considered to be the predominant contributors to the production and distribution of ICT goods and services. The table is based on ABS surveys conducted for 1992–93 and 1995–96.

The scope and definitions for both surveys are broadly consistent. However, some of the apparent growth in the size of the industries between 1992–93 and 1995–96 stems from improvements in the coding and coverage of the relevant businesses. Although difficult to quantify precisely, investigations suggest that these improvements contributed about 10% to the growth in income, expenses and pre-tax profit between the surveys.

In 1995–96, the various parts of the ICT sector accounted for the following proportions of total income for the sector:

- telecommunication services industry, 38% of total income;
- ICT businesses in the wholesale trade sector, 35%;
- computer services industry, 17%; and
- ICT businesses in the manufacturing sector, 10%.

**24.2 INDUSTRIES IN THE ICT SECTOR, Income and Expenses**

Industry	1992–93			1995–96		
	Total income	Total expenses	Operating profit before tax	Total income	Total expenses	Operating profit before tax
	\$m	\$m	\$m	\$m	\$m	\$m
Manufacturing						
Computer and business machines	n.p.	n.p.	n.p.	1 934.5	1 910.0	90.5
Telecommunication, broadcasting and transceiving equipment	1 802.7	1 730.1	93.8	1 659.7	1 347.0	284.5
Electronic equipment n.e.c.	290.4	270.1	n.p.	99.1	97.5	*8.6
Electric cable and wire	412.3	316.4	124.3	1 072.5	1 040.0	53.7
Total	n.p.	n.p.	228.1	4 765.8	4 394.5	437.3
Wholesale trade						
Computers	4 931.5	4 828.5	167.1	12 254.9	11 741.5	581.2
Business machines and electrical and electronic equipment n.e.c.	n.p.	n.p.	n.p.	5 070.9	4 926.9	291.4
Total	n.p.	n.p.	n.p.	17 325.8	16 668.4	872.6
Telecommunication services	n.p.	n.p.	n.p.	18 733.7	15 933.6	2 781.5
Computer services	4 100.2	3 749.0	364.9	8 087.8	7 640.9	455.3
<b>Total</b>	<b>27 448.5</b>	<b>24 830.3</b>	<b>2 665.1</b>	<b>48 913.1</b>	<b>44 637.4</b>	<b>4 546.7</b>

Source: Information Technology, Australia (8126.0).

## Telecommunication services within Australia

### The telecommunications environment in Australia

The *Telecommunications Act 1997* and associated legislation commenced on 1 July 1997. The aim of the Act is to promote consumer choice by facilitating open market competition in the supply of telecommunications infrastructure and services.

Major consequences of the Act have been an increase in the number of licensed telecommunications carriers operating in Australia—from 3 at June 1997 to 31 at August 1999—and an increasing emphasis on industry self-regulation, while protecting consumer interests.

### Role of the Australian Communications Authority

The role of the Australian Communications Authority (ACA) is to promote the development of an efficient, competitive and increasingly self-regulated Australian telecommunications industry.

The aim of self-regulation is to encourage industry to respond to customer needs without first having to overcome excessive regulatory restrictions. With assistance from the Australian Communications Industry Forum (ACIF) and the

ACA, industry groups are encouraged to develop their own codes of practice and technical standards, and register them with the ACA. When a code fails or proves inadequate, the ACA is empowered to intervene and enforce a code or develop a mandatory standard.

In this environment of industry self-regulation, the Customer Service Guarantee (CSG) and the Universal Service Obligation (USO) provide for consumer protection. Under the CSG, telephone subscribers are legally entitled to claim compensation from carriage service providers (CSPs) who fail to keep appointments, provide service connections, repair faults and provide certain other services, within set timeframes.

The *Telecommunications Act 1997* defines the USO and names Telstra the USO provider. Under the USO, Telstra is obliged to ensure that standard telephone services and pay phones are reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business.

The telecommunications market has seen a proliferation of new services and technologies which have increased the demand for access to the radio frequency spectrum. To meet this demand and to facilitate the entry of new players, the ACA is increasingly using market-based allocation mechanisms, e.g. the auctioning process, to ensure the most efficient use of the limited radio frequency spectrum.

## Telecommunications carriers and service providers

At August 1999, the telecommunication services industry comprised 31 licensed telecommunications carriers, about 500 Internet service providers (ISPs) and some 400 businesses providing some other form of telecommunication services. As these types of business provide very different services, it is useful when analysing the industry to disaggregate it into these three sub-industries.

As indicated above, the telecommunications market has been deregulated since 1 July 1997. To obtain benchmark data for measuring subsequent changes in this market, the ABS conducted a survey of telecommunications businesses immediately prior to deregulation.

Table 24.3 shows summary information on the performance of the telecommunication services industry in 1996–97, including separate data for licensed carriers, ISPs and other service providers.

### Licensed carriers

At the end of June 1997, Australia had only three licensed carriers (network owners)—Telstra, Optus and Vodafone. These businesses dominated the telecommunication services industry, contributing \$18.6b (91%) to total industry income. The major carrier revenues in 1996–97 comprised:

- \$10.5b from voice services;
- \$3.9b from mobile services; and
- \$2.5b from data and other services.

### Service providers

The *Telecommunications Act 1997* allows any person to provide a range of telecommunication services, provided they comply with the provisions of the Act. Providers may use telecommunications capacity acquired from a carrier (e.g. Telstra or Optus) or, in defined circumstances, from non-carrier infrastructure, to supply a range of local or national telecommunication services to consumer and commercial markets. These services include public switched voice, data and value-added services, and private network services.

At the end of June 1997, there were about 408 service providers, of which the majority (306) were ISPs (compared with about 500 ISPs at August 1999, as indicated above). These numbers exclude businesses for whom telecommunication service provision was a minor part of their business operation.

Service providers typically purchase network capacity from carriers at discounted rates. In theory this allows them to provide either similar services at competitive prices or value-added services. The statistics for 1996–97 show that only the three carriers (as a group) made an operating profit before tax. ISPs collectively made a loss of \$32m and other service providers (including agents/dealers) made a loss of \$430m.

It is not possible to provide a detailed dissection of the expenses shown in table 24.3 for the licensed carriers sub-industry. However, the 1996–97 ABS survey allowed such a disaggregation to be made for the other sub-industries; these are shown in table 24.4. The major expenses identified separately were labour costs, domestic interconnection expenses and transmission expenses.

**24.3 TELECOMMUNICATION SERVICES INDUSTRY, Summary Measures of Performance—1996–97**

	Units	Carriers	Internet service providers	Other service providers (including agents/ dealers)	Total
Businesses at 30 June 1997	no.	3	306	102	411
Employment at 30 June 1997(a)					
Full-time	no.	69 217.0	1 355.0	5 444.0	76 016.0
Part-time	no.	2 120.0	291.0	1 228.0	3 639.0
<i>Total</i>	<i>no.</i>	<i>71 337.0</i>	<i>1 646.0</i>	<i>6 672.0</i>	<i>79 654.0</i>
Income					
Income from telecommunication services					
Voice services	\$m	9 365.7	—	1 106.2	10 471.9
Mobile services	\$m	3 401.4	—	453.1	3 854.4
Internet services	\$m	30.5	151.2	1.7	183.5
Data services and other telecommunication services	\$m	2 315.2	1.3	196.6	2 513.2
<i>Total</i>	<i>\$m</i>	<i>15 112.8</i>	<i>152.6</i>	<i>1 757.7</i>	<i>17 023.0</i>
Commission income	\$m	—	—	76.2	76.3
Income from rebates/incentives	\$m	—	—	57.5	57.5
Rent, leasing and hiring income	\$m	2 260.2	0.2	88.8	2 349.3
Other income	\$m	1 179.0	7.6	234.5	1 421.1
<i>Total income</i>	<i>\$m</i>	<i>18 552.0</i>	<i>160.4</i>	<i>2 214.7</i>	<i>20 927.2</i>
Total expenses	\$m	16 621.7	192.8	2 643.7	19 458.2
Operating profit before tax	\$m	1 934.9	–32.4	–429.7	1 472.8
Operating profit margin	%	10.5	–20.7	–19.7	7.1
Industry gross product	\$m	12 263.7	20.3	–49.6	12 234.4

(a) Employment data exclude some staff not predominantly engaged in the telecommunication services industry. Where a full-time/part-time employment split is unavailable, figures have been incorporated in full-time data.

Source: *Telecommunication Services, Australia* (8145.0).

**24.4 SERVICE PROVIDERS, Expenses—1996–97**

	Internet service providers	Other service providers (including agents/dealers)
	\$m	\$m
Expenses		
Labour costs	40.3	253.8
Payments to sub-contractors and consultants	9.4	49.6
Commission/rebate expenses	2.5	89.6
Domestic interconnection expenses	32.5	688.5
International outpayments	5.7	85.1
Transmission expenses	29.3	677.2
Rent, leasing and hiring expenses	9.8	96.2
Purchases	7.4	151.2
Other expenses	55.9	552.5
<b>Total</b>	<b>192.8</b>	<b>2 643.7</b>

Source: *Telecommunication Services, Australia* (8145.0).



## Postal communications

### Australian Postal Corporation

The Australian Postal Corporation (trading as Australia Post) is a government business enterprise owned by the Commonwealth of Australia. It operates under the *Australian Postal Corporation Act 1989*. Australia Post is independent of Government funding, achieves a substantial profit from its activities, and pays a full range of taxes and charges. In 1998–99, Australia Post paid \$310m in taxes and government charges (\$295m in 1997–98).

Australia Post offers letter and parcel delivery services within Australia and internationally. It also provides a range of related services including electronic bulk mail handling, advertising mail, bill payment, money order and banking services, express delivery services and philatelic products and services.

Australia Post's legal obligations require it to:

- provide Australians with a universal letter service;
- carry standard letters within Australia at a uniform price;
- ensure that the letter service meets the social, industrial and commercial needs of the community;
- perform its functions according to sound business practice; and
- perform its functions consistent with the Commonwealth's general policies.

Financial and other operating statistics for Australia Post are shown in tables 24.5, 24.6 and 24.7.

**24.5 AUSTRALIAN POSTAL CORPORATION, Consolidated Financial Statement**

	1995–96	1996–97	1997–98	1998–99
	(\$m)			
Revenue	2 915.8	3 123.6	3 300.3	3 448.7
Expenditure	2 576.3	2 787.0	2 923.9	3 074.4
Operating profit before abnormals and tax	368.0	353.1	335.2	373.0
Dividends	142.6	219.9	215.1	148.7
Total taxes and government charges(a)	305.9	307.6	294.6	309.5
Cost of Universal Service Obligations(b)	72.0	67.0	71.0	70.0
Total assets(c)	2 382.0	2 588.6	2 735.8	2 853.5
	%			
Return on assets(d)	16.6	15.1	13.4	14.6

(a) Includes sales tax and customs duty, payroll tax, local government taxes and charges, federal excise duty, and fringe benefits tax. (b) The Universal Service Obligation ensures that all Australians have reasonable access to the letter service; this includes the delivery of standard letters by ordinary post at a uniform price even when the delivery cost is higher. (c) At 30 June of the financial years shown. (d) Operating profit before net interest and income tax divided by average total assets.

Source: Australian Postal Corporation.

**24.6 AUSTRALIAN POSTAL CORPORATION, Mail Delivery Network and Post Outlets**

	1995–96	1996–97	1997–98	1998–99
	no.	no.	no.	no.
Households receiving mail	7 131 522	7 387 216	7 348 319	7 668 143
Businesses receiving mail	789 100	822 949	822 412	838 009
<b>Total delivery points</b>	<b>7 920 622</b>	<b>8 210 165</b>	<b>8 170 731</b>	<b>8 506 152</b>
Corporate outlets and Licensed Post Offices	3 957	3 934	3 922	3 903

Source: Australian Postal Corporation.

**24.7 AUSTRALIAN POSTAL CORPORATION, Total Postal Articles Handled**

	1994–95	1995–96	1996–97	1997–98	1998–99
	million	million	million	million	million
Posted in Australia for delivery in Australia	3 529.9	3 733.7	3 888.1	4 046.1	4 188.0
Posted in Australia for delivery overseas	146.4	159.1	157.3	165.1	168.6
Posted overseas for delivery in Australia	151.4	154.6	160.3	160.8	164.2
<b>Total articles through mail network</b>	<b>3 827.7</b>	<b>4 047.4</b>	<b>4 205.7</b>	<b>4 372.0</b>	<b>4 520.8</b>

Source: Australian Postal Corporation.

## Use of information technology

### Business use of information technology (IT)

At the end of June 1998, 64% of all employing businesses in Australia used personal computers (PCs). The corresponding figure for the end of June 1994 was 49%. Of the businesses with PCs at the end of June 1998, almost half had Internet access (30% of all businesses) and about a third had local area networks (LANs) and/or wide area computer networks (WANs) (20% of all businesses). The proportion of businesses using email closely matched the proportion of businesses with Web browser capabilities (29% and 26% of all businesses respectively). There were three PCs for every ten persons employed. The ratio of PCs to PC users was higher, with eight PCs for every ten users. Employees providing in-house or external information technology and telecommunications (IT&T) services accounted for about 3% of total employment. On average, every in-house IT&T employee supported 27 PC users.

### IT use by industry

PC use was proportionately highest in mining (80%) and property and business services (79%) (table 24.8). While overall PC use in communication services was 73%, the telecommunication services sector reported 100%. PC use was lowest in the personal and other services industry (44%) and the accommodation, cafes and restaurants industry (47%). The proportion of businesses using LANs or WANs was consistently higher in industries with a high incidence of PC use. Access to the Internet, email and/or Web browsers was highest in industries with the highest proportion of PC use. Internet access was highest in mining (47%) and property and business services (46%), and lowest in accommodation, cafes and restaurants (16%) and retail trade (17%). Email and/or Web browser access was highest in mining (email 46% and Web browser 42%) and property and business services (email 45% and Web browser 41%).

**24.8 SELECTED IT&T USE, By Industry—June 1998**

Industry	Businesses at end June 1998				
	Personal computers	LAN/WAN	Internet access	Email access	Web browser access
	%	%	%	%	%
Mining	80.4	38.0	46.8	46.3	42.4
Manufacturing	70.8	20.1	31.5	29.9	25.3
Electricity, gas & water supply	n.a.	n.a.	n.a.	n.a.	n.a.
Construction	55.9	8.2	20.2	18.9	16.2
Wholesale trade	75.8	31.1	40.9	40.1	36.3
Retail trade	53.0	17.7	16.9	16.7	13.6
Accommodation, cafes & restaurants	46.9	8.6	16.4	13.7	14.9
Transport & storage	52.9	15.8	20.0	19.8	16.4
Communication services(a)	72.7	*16.5	35.7	35.7	*37.7
Finance & insurance	72.8	22.7	39.6	38.3	34.6
Property & business services	78.6	31.4	46.4	44.7	40.9
Health & community services	67.8	19.9	31.7	31.0	29.9
Cultural & recreational services	64.3	17.2	35.0	34.8	30.8
Personal & other services	43.8	13.5	21.8	21.0	19.0
<b>Total</b>	<b>63.9</b>	<b>20.4</b>	<b>30.1</b>	<b>29.1</b>	<b>26.0</b>

(a) Includes telecommunication services, and postal and courier services.

Source: Business Use of Information Technology, Australia, 1997–98 (Preliminary) (8133.0).

### IT use by size of business

The proportion of businesses using PCs increased with the size of the business. At the end of June 1998 nearly all businesses with 100 or more employees used PCs (99.8%), and 78% of them were connected to a LAN or WAN (table 24.9). In contrast, only 55% of businesses employing 1–4 persons used PCs, with a fifth of these businesses connected to a computer network (11% of all businesses of this size). Larger businesses were more likely to have Internet access, and email and/or Web browser access. Of businesses employing 100 or more persons, 90% had Internet access. This compares with 26% of businesses employing 1–4 persons, 33% of businesses employing 5–19 persons and 57% of businesses employing 20–99 persons.

### Farm use of information technology

The ABS's Agricultural Commodity Survey estimated that 48% of farms had a computer at March 1999 (table 24.10). This approached the proportion for capital city households (52% at May 1999), but was significantly greater than for all other households (39%). (The latter category comprises farm households and households in regional and rural towns.) The Northern Territory had the highest proportion of farms with computers (64%) and Queensland the lowest (44%).

Nearly 19% of farms were connected to the Internet at March 1999. This compares with 22% of all Australian households, 26% of capital city households, and 17% of households in all other areas. The Northern Territory had the highest proportion of farms with Internet access (32%) and Queensland the lowest (16%).

**24.9 SELECTED IT & T USE, By Business Size—June 1998**

	Employment size				Total
	1–4 persons	5–19 persons	20–99 persons	100 or more persons	
Employing businesses with	%	%	%	%	%
Personal computers	55.2	78.1	90.7	99.8	63.9
LAN/WAN	11.3	33.8	50.6	77.9	20.4
Internet access	25.6	32.9	56.6	90.2	30.1
Email access	24.4	32.3	54.6	89.2	29.1
Web browser access	21.9	28.6	49.0	83.2	26.0

Source: *Business Use of Information Technology, Australia, 1997–98 Preliminary* (8133.0).

**24.10 FARMS WITH A COMPUTER OR INTERNET ACCESS, By State/Territory—March 1999**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	%	%	%	%	%	%	%	%	%
Farms with a computer	47.2	47.3	43.6	51.6	57.6	45.3	64.4	61.1	47.8
Farms with Internet access	19.2	18.1	16.3	21.3	17.5	23.4	31.8	24.2	18.5

(a) Estimates are sourced from the Agricultural Commodity Survey, reference period March 1999.

Source: *Unpublished data, Agricultural Commodity Survey*.

## Household use of information technology

At May 1999, about 47% of households (3.2 million) had computers, a 13% increase over May 1998. About 22% of households (1.5 million) had Internet access, a 57% increase over May 1998 (table 24.11).

### Regional differences

Table 24.12 shows the distribution by State/Territory. These statistics are an average of the results from the four surveys conducted between August 1998 and May 1999. The ACT had by far the highest penetration rate (67%) and Tasmania the lowest (38%).

At May 1999, significantly more capital city households had a computer (52%) than did other households (39%). The proportion of households with Internet access is increasing in both the capital cities and in other areas of Australia (table 24.13). The proportion of capital city households with Internet access increased from 18% in May 1998 to 26% in May 1999, and the proportion of households with Internet access in other areas increased from 8% to 17%. Of the nearly 1.5 million households with Internet access at May 1999, 73% (1.1 million households) were located in capital cities. This is proportionately fewer than in May 1998 when 79% (770,000) of households with Internet access were located in capital cities.

**24.11 HOUSEHOLDS WITH A COMPUTER OR INTERNET ACCESS(a)**

	May 1998	August 1998	November 1998	February 1999	May 1999	May 1999	% change since May 1998
	'000	'000	'000	'000	'000	%	%
Households with a home computer	2 879	3 195	3 240	3 167	3 245	47.2	12.7
Households with home Internet access	971	1 245	1 272	1 277	1 524	22.2	57.0

(a) Proportions are of all households.

Source: *Use of the Internet by Householders, Australia, May 1999 (8147.0)*.

**24.12 HOUSEHOLDS WITH A COMPUTER OR INTERNET ACCESS(a), By State/Territory(b)—1998–99**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT
	%	%	%	%	%	%	%	%
Computer	46.2	49.0	43.7	45.7	46.3	38.3	48.8	66.8
Internet access	20.3	18.6	19.0	17.2	18.8	14.0	23.4	19.2

(a) Proportions are of all households. (b) State/Territory data are not available on a quarterly basis. These estimates average the results from household surveys in August and November 1998, and February and May 1999.

Source: *Unpublished data, ABS Household Use of Information Technology survey*.

**24.13 HOUSEHOLDS WITH HOME INTERNET ACCESS(a)**

	May 1998		May 1999	
Region	'000	%	'000	%
Capital cities	770	18.0	1 108	25.5
Rest of Australia	201	7.9	417	16.6
<b>Australia</b>	<b>971</b>	<b>14.2</b>	<b>1 524</b>	<b>22.2</b>

(a) Proportions are of all households in each region category.

Source: *Use of the Internet by Householders, Australia, May 1999 (8147.0)*.

### Characteristics of households with home Internet access

The presence of children appears to be an important factor in the decision to acquire Internet access. In May 1999, 36% of 'couple with children' households had Internet access, compared with 16% of 'couple with no children' households, and 8% of 'single person' households (table 24.14).

**24.14 HOUSEHOLD TYPES AND INTERNET ACCESS(a)**

Household type	May 1998		May 1999	
	'000	%	'000	%
Couple with no children	196	11.6	274	16.2
Couple with children	484	20.2	833	36.3
Single parent with children	68	11.2	91	13.0
Single person	75	5.0	110	8.1
Other	148	23.2	217	26.4

(a) Proportions are of all households in each category.

Source: *Use of the Internet by Householders, Australia, May 1999 (8147.0)*.

### Characteristics of adult Internet users

An estimated 5.5 million adults (40% of all adults) accessed the Internet from any site (e.g. home, work) at some time over the 12 months to May 1999. The comparable figure for the 12 months to May 1998 was 3.6 million adults (26% of all adults). Between May 1998 and May 1999 there was no change in the main characteristics of adults accessing the Internet (table 24.15). In the 12 months to May 1999:

- 74% (1.3 million) of 18–24 year olds accessed the Internet from any site, compared to 53% (2.3 million) of 25–39 year olds, 39% (1.5 million) of 40–54 year olds and 10% (0.4 million) of persons aged 55 years and over;
- 44% of adult males (2.9 million) and 37% (2.5 million) of adult females accessed the Internet from any site;
- 55% of adults employed full-time (3.4 million) accessed the Internet from any site, compared to 41% of all unemployed adults (0.2 million) and 17% of all adults not in the labour force (0.8 million);
- 72% of the 5.5 million adults who accessed the Internet from any site, resided in capital cities; and
- 44% of adults in capital cities (3.9 million) accessed the Internet from any site, compared to 33% (1.5 million) in other areas.

**24.15 ADULTS ACCESSING THE INTERNET(a)(b), Main Characteristics—May 1998 and 1999**

	Site of Internet access							
	Home		Work		Other sites		Any site	
	'000	%	'000	%	'000	%	'000	%
MAY 1999(c)								
Age								
18–24	480	26.7	399	22.1	1 148	63.7	1 340	74.4
25–39	885	20.8	1 338	31.5	1 200	28.2	2 270	53.4
40–54	771	20.0	866	22.5	614	15.9	1 491	38.7
55+	174	4.8	130	3.5	178	4.9	364	9.9
Sex								
Males	1 324	19.8	1 536	23.0	1 734	26.0	2 941	44.0
Females	987	14.3	1 197	17.3	1 406	20.4	2 524	36.5
Labour force status								
employed full-time	1 435	23.2	2 322	37.6	1 673	27.1	3 416	55.3
employed part-time	483	21.1	292	12.8	660	28.8	1 044	45.6
unemployed	*62	*11.5	*61	*11.3	195	35.9	221	40.8
not in the labour force	330	7.2	*57	*1.2	613	13.4	784	17.1
Region								
Capital cities	1 659	18.7	2 037	22.9	2 214	24.9	3 917	44.1
Rest of Australia	652	13.9	696	14.8	926	19.7	1 547	32.9
<b>Total</b>	<b>2 311</b>	<b>17.0</b>	<b>2 733</b>	<b>20.1</b>	<b>3 141</b>	<b>23.1</b>	<b>5 465</b>	<b>40.2</b>
MAY 1998(c)								
Age								
18–24	257	14.2	193	10.6	772	42.6	881	48.6
25–39	609	14.3	667	15.6	655	15.3	1 449	34.0
40–54	488	12.9	611	16.2	374	9.9	1 037	27.5
55+	79	2.2	*71	*1.97	82	2.3	187	5.2
Sex								
Males	920	13.9	922	13.9	946	14.3	1 905	28.7
Females	512	7.5	619	9.1	936	13.7	1 651	24.2
Labour force status								
employed full-time	897	15.2	1 339	22.7	880	14.9	2 157	36.6
employed part-time	301	12.0	164	6.5	568	22.6	817	32.5
unemployed	*13	*2.4	*1	*0.3	90	16.6	99	18.2
not in the labour force	2 217	4.9	*37	0.8	345	7.7	482	10.7
Region								
Capital cities	1 157	13.4	1 156	13.3	1 371	15.8	2 613	30.2
Rest of Australia	276	5.8	385	8.1	511	10.7	942	19.7
<b>Total</b>	<b>1 433</b>	<b>10.7</b>	<b>1 541</b>	<b>11.5</b>	<b>1 882</b>	<b>14.0</b>	<b>3 555</b>	<b>26.4</b>

(a) Proportions are of all persons in each category. (b) Persons can nominate more than one site if applicable. (c) Internet access occurring in the preceding 12 months.

Source: *Use of the Internet by Householders, Australia, May 1999 (8147.0)*.

### Electronic commerce activities on the Internet

Nearly 5% of Australian adults (650,000) used the Internet to purchase or order goods/services for their own private use in the 12 months to May 1999. These Internet shoppers made an estimated 3 million purchases/orders, and nearly 76% of Internet shoppers paid for them online. By comparison, in the 12 months to May 1998 an estimated 409,000 adults purchased or ordered goods/services via the Internet.

An estimated 71% of Internet shoppers (459,000) made their purchases/orders from home. Just over 41% of Internet shoppers made their purchases/orders only from Australian Internet sites, 43% made them only from overseas Internet sites and 16% made them from both.

Of the 650,000 adults making Internet purchases/orders in the 12 months to May 1999:

- 38% reported purchasing/ordering books or magazines;
- 34% reported purchasing computer software or equipment;
- 14% reported purchasing music;
- 11% clothing or shoes;
- 9% holidays;
- 8% tickets to entertainment events; and
- 4% sporting equipment.

Of these adults making Internet purchases/orders in this period:

- 14% spent up to \$50 on Internet purchases/orders;
- 22% spent \$51–\$100;
- 21% spent \$101–\$250;
- 13% spent \$251–\$500; and
- 29% spent more than \$500.

### **Teleworking**

At May 1999, nearly 7% of employed adults (0.6 million persons) reported that they were able to access their employer's computer system from home via a modem, compared to 2% (0.2 million) of employed adults at May 1998. At May 1999, nearly 5% of employed adults (0.4 million persons) reported that they had a teleworking agreement with their employer to access their computer via a modem so that they could work from home, compared to 2% (0.1 million) of employed persons at May 1998.

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Communications Research Unit (DOCITA), <http://www.dcita.gov.au/cru>

Australian Information Industries Association, <http://www.aiia.com.au>

National Office for the Information Economy, <http://www.noie.gov.au>



# Real time: computers, change and schooling

## A national sample study of the information technology skills of Australian school students

*(This article reports on a study of the information technology skills of Australian school students, commissioned by the Department of Education, Training and Youth Affairs on behalf of the Ministerial Council on Education, Employment, Training and Youth Affairs as a sample study for the 1997 National Report on Schooling in Australia. The article has been contributed by Denise Meredyth, Neil Russell, Leda Blackwood, Julian Thomas and Patricia Wise, of the Australian Key Centre for Cultural and Media Policy, Griffith University.)*

### Introduction

The *Real Time: Computers, Change and Schooling* report<sup>1</sup> presents the results of a 1998 survey of a representative sample of primary and secondary schools throughout Australia. The sample was constructed to provide data on issues relating to the use of computers in schools by State and Territory, and by the three major education sectors—government, Catholic and independent. Survey forms were returned by 220 school principals, 1,258 teachers, and 6,213 students in the final year of primary school and the final year of junior secondary school. Data on information technology policy were obtained from every major school system in Australia and from a number of smaller, independent authorities. The emphasis in the study was on determining which information technology (IT) skills students and teachers were using in the classroom, and not on the administrative uses of computers in the school. This article presents the findings of the study which relate to the IT skills of students.

### Information technology in the school

Most schools principals regard IT as a strong point of the school and as important to students' learning. The great majority of schools give a high budget priority to the provision of hardware and software for students and for teachers. However, principals and teachers report that funding presents one of the main barriers to developing students' IT skills.

Overall, the findings indicate that there has been a strong focus on providing computers for student use in schools. The results are reflected in the overall ratio of students to computers in the schools. Some 71% of schools surveyed reported that they had a student–computer ratio of 15 or fewer students to one computer, with 40% having ten or fewer students per computer. Using the student–computer ratio alone, clear disparities emerge between smaller and larger schools. Schools with low student–computer ratios are likely to be Independent schools, or combined or secondary schools, to be in high income areas and to be urban. Catholic schools are much more likely to have higher student–computer ratios.

Where student–computer ratios are advantageous, students are more confident about their own basic and advanced skills, and are more likely to say they enjoy using computers at school. The better the student–computer ratio, the more time students spend on computers at school, both alone and in small groups, and the wider and more sophisticated their use of IT across the curriculum.

However, the *Real Time* study cautioned against an overemphasis on the amount of equipment within schools, as measured by student–computer ratios. It is equally important that schools have a coherent and comprehensive IT policy covering current use and future directions.

## Information technology skills

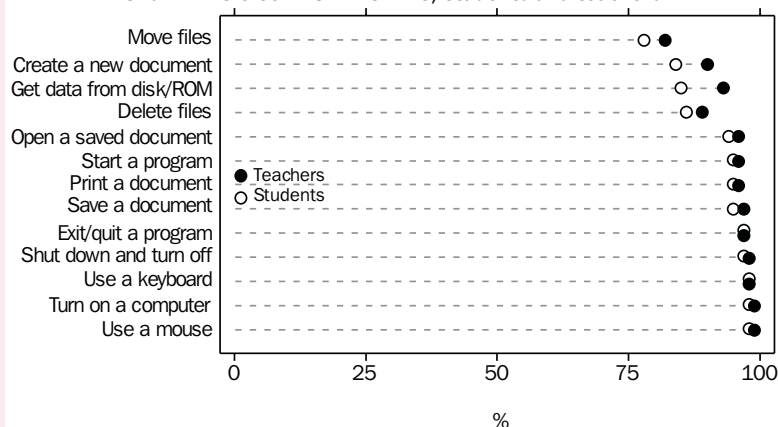
Students were asked where they first acquired a range of 'core' and 'advanced' IT skills, and distinctions were made between the learning activities occurring in the school and outside it.

The profile for students' computer skills indicates an extremely high level of basic skills and a very high level of advanced skills. Over 95% of students surveyed have more than half of the skills core to the basic operation of computers, and nearly 80% have close to all of them (graph S10.1). The basic skills were defined as the ability to use a mouse, turn on a computer, shut down and turn off, exit or quit a program, save a document, print a document, start a program, open a saved document, delete files, get data from disk/ROM, create a new document, and move files.

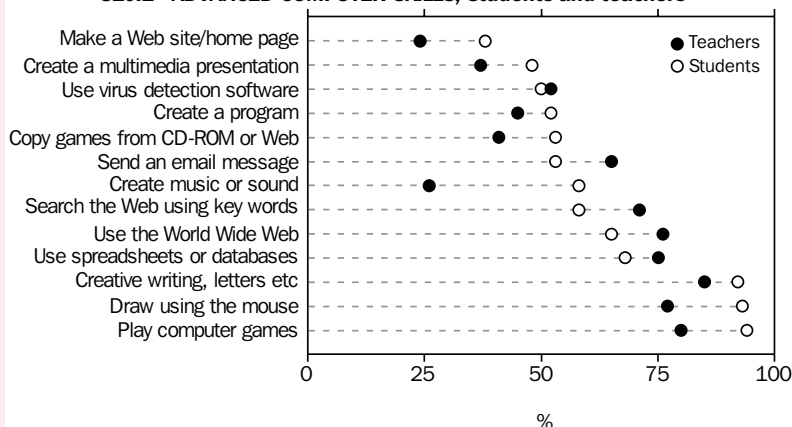
from disk/CD-ROM, and create a new document. The majority of students with these basic skills developed them at home.

Some 50% or more of students have 11 of the 13 advanced skills (graph S10.2). These were defined as the ability to play computer games, draw using the mouse, use virus detection software, create a multimedia presentation, use the World Wide Web, search the Web using keywords, create music or sound using a computer, send an email message, copy games from a CD-ROM or the Web, create a program, use spreadsheets or databases, creative writing, letters etc, and make a Web site or home page. Some 65% of students reported that they knew how to use the Web. Again, students reported that they tend to acquire these advanced skills at home rather than at school.

**S10.1 BASIC COMPUTER SKILLS, Students and teachers**



**S10.2 ADVANCED COMPUTER SKILLS, Students and teachers**



While the basic IT skills of students and their teachers are broadly equivalent, students are far ahead in advanced skills, especially in multimedia creation, creating music and sound, and creating Web sites or home pages. Teachers lead in the advanced skills which most students are more likely to learn at school—using and searching the Web, and sending email.

Some of the more remarkable findings relate to age. Some 56% of all students and 75% of current primary students began using computers before Year 4. This is consistent across school sectors and genders. The younger the students, the more likely they are to have started using computers earlier. Table S10.3 summarises the findings regarding the advanced computer skills of end primary and end secondary students, and where they acquired the skills (at home or at school).

Of those using computers outside school, 26% began before the age of 7, and 51% between the ages of 7 and 10. Furthermore, students at the end of primary school appear to use computers outside school more than those at the end of junior secondary school, and report higher levels

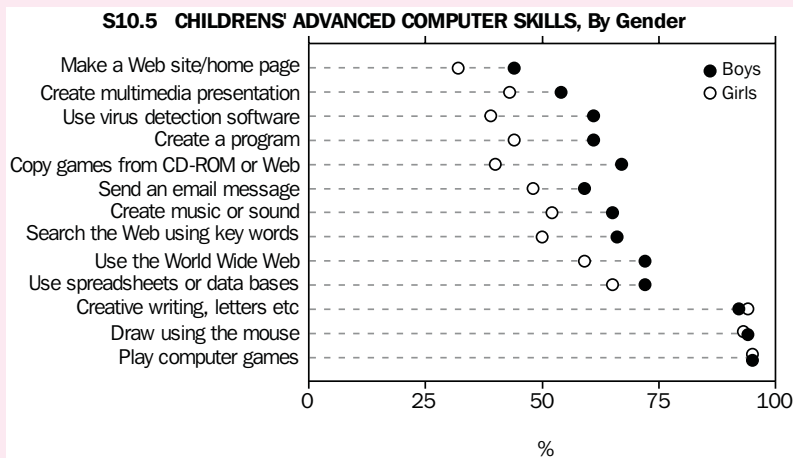
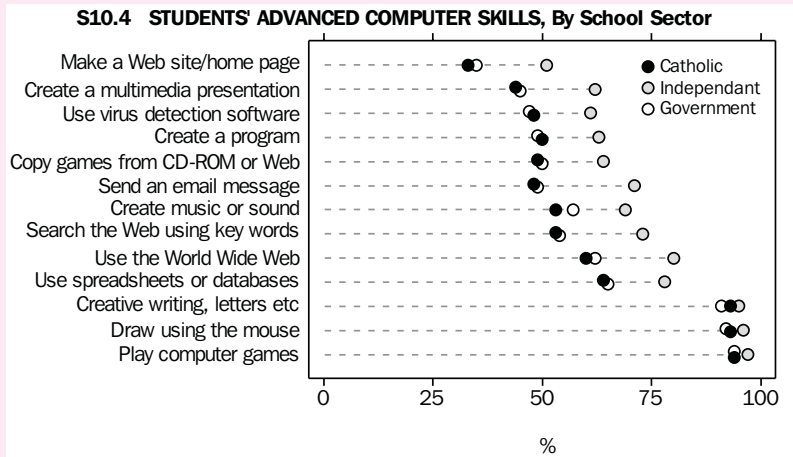
of enjoyment. They are currently exploring advanced applications to almost the same extent as older students, especially when they have access to those applications at home. These findings appear to confirm the assertion in the literature that we are seeing a rapid acceleration of more use and more sophisticated use at an early age. However, the existence and nature of these trends needs to be confirmed by longitudinal study.

The study demonstrated disparities in students' IT skills, according to school type, size, sector, location and income area, and according to students' sex, cultural background and ethnicity. Indigenous students and students from small schools, especially in rural and isolated areas, are the most likely to lack basic skills. In the advanced skill range, students from Independent schools and single-sex boys' schools reported the greatest degree of familiarity with the most complex uses of IT, and those in primary schools, small schools and schools in rural, isolated and low-income areas reported the least. Graph S10.4 illustrates some of these differences at a broad level.

**S10.3 END PRIMARY AND END SECONDARY STUDENTS, Advanced Computer Skills by Where Acquired(a)(b)**

Core skill	Have skill		Learnt at home		Learnt at school	
	End primary	End junior secondary	End primary	End junior secondary	End primary	End junior secondary
	%	%	%	%	%	%
Make a web site/home page	33	44	16	18	12	20
Create multimedia presentation	44	54	25	25	14	25
Use virus detection software	45	58	3	4	9	13
Create a program e.g. in logo, Pascal	45	62	24	23	17	38
Copy games from CD-ROM or Web	50	58	3	34	9	11
Send an email message	49	59	22	30	18	20
Create music or sound using computer	30	25	37	34	16	19
Search the Web using key words	51	68	20	27	19	30
Use the World Wide Web	59	75	23	28	24	35
Use spreadsheets or databases	57	84	28	29	26	53
Creative writing, letters etc	93	93	53	59	40	32
Draw using the mouse	93	94	61	63	29	29
Play computer games	96	95	70	75	22	15

(a) More than one core skill could be reported in the survey response. (b) An 'Other' column has not been included; columns 3–6 refer only to those reporting a skill(s).



Use of the Web is strongly related to income area, with 79% of students in schools within the highest income areas using it, as compared to 61% from the lowest. Boys have more advanced skills than girls (graph S10.5), although their basic skills are on a par.

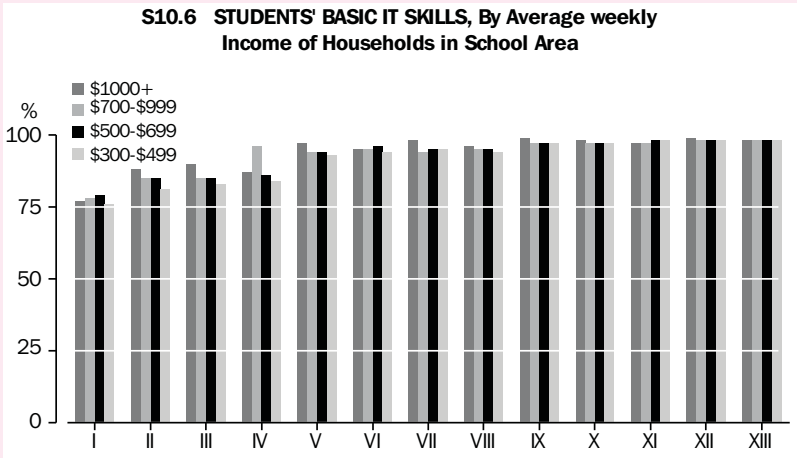
These findings are strongly related to family background and home use of computers. The study showed high levels of computer use outside school (85% of all students). Some 50% of students use a computer outside school every day or almost every day. The earlier they began using them, the more frequently they use them at a later age. Although a substantial minority of students developed their advanced skills at school, most acquired them at home. Indeed, a major finding of this study is that school is an unlikely venue for students to first acquire advanced IT skills. The exceptions—those least likely to use a computer outside school—are

students in government schools and schools in lower income areas, country towns and small rural communities, and Indigenous students.

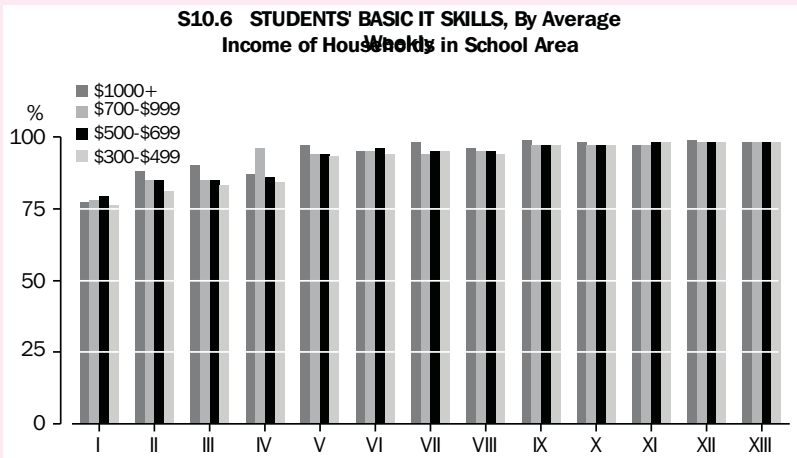
Patterns of home use appear to have very significant effects on students' skills, confidence and enjoyment in using IT. Students who first learned to use a computer outside school are more likely to enjoy using them outside school, and dislike using them at school. They are far more likely to judge their ability to use computers at schools as excellent, than students who first developed skills at school, while those who learned the skills at school are likely to be less confident about their own abilities.

School location, sector and socio-economic background<sup>2</sup> are closely linked to the presence of computers and computer-related technologies in students' homes, to patterns of use and to the age when students first use computers, both at school and elsewhere. The higher the average family income of the area where students go to school and the greater the population density, the more likely students are to have acquired IT skills at home, to use them more frequently and to have started earlier than others. Students from Independent schools, and schools in urban areas and high income areas are most likely to use

computers outside school, most likely to use them frequently and most likely to enjoy using them. They are most likely to have computers in the home and to own their own computer, and they are also more likely to have access to a range of other technologies and resources in the home, including modem, fax, printer and scanner, their own room and their own computer. Graph S10.6 illustrates, for students' basic IT skills, the relationship between those skills and household income. Graph S10.7 illustrates that relationship for students' advanced IT skills.



- Key to basic computer skills**
- I Move files.
  - II Create a new document.
  - III Get data from disk/CD ROM.
  - IV Delete files.
  - V Open a saved document.
  - VI Start a program.
  - VII Print a document.
  - VIII Save a document.
  - IX Exit/quit a program.
  - X Shut down and turn off.
  - XI Use a keyboard.
  - XII Turn on a computer.
  - XIII Use a mouse.



- Key to advanced computer skills**
- I Make a web site/home page.
  - II Create multimedia presentation.
  - III Use virus detection software.
  - IV Create a program e.g. in logo, Pascal.
  - V Copy games from CD-ROM or Web.
  - VI Send an email message.
  - VII Create music or sound using computer.
  - VIII Search the Web using key words.
  - IX Use the World Wide Web.
  - X Use spreadsheets or databases.
  - XI Creative writing, letters etc.
  - XII Draw using the mouse.
  - XIII Play computer games.

Boys are also more likely to have learned basic skills at home than girls, whereas girls tend to acquire their skills at school. Indigenous students are also more likely to learn these skills at school than at home, though many acquire them at other sites outside school.

The pattern of IT use by gender is equally complex. The difference appears in patterns of home use. Boys start using computers earlier outside school and are more likely to have access to computer-related technologies, games and their own computer, and supplement their school-based computer activities with extensive experimentation outside school. Girls are significantly less likely than boys to have their own computer. Boys report significantly higher use of video games, SEGA and Nintendo games, and communication uses, whereas girls outside school are more likely to use computers for study. This is possibly why girls report fewer IT skills, despite showing considerable interest and skill in other applications. Girls tend to acquire basic skills at school, thus evening out the disparity, but many of the advanced skills are not taught at school, partly because teachers are often unfamiliar with more advanced applications. Where girls do not learn advanced computer skills at home, they tend not to acquire them at all. These patterns are consistent across income areas. Nevertheless, they are likely to be far more marked for girls in low income areas, government schools, small schools and rural areas than for those in Independent or single-sex schools. Indigenous girls are multiply disadvantaged.

These findings reinforce the warning in the literature that inequities in household access to computers and networks will widen the gap

between the 'information rich' and the 'information poor'. Apart from income and equipment in the home, however, various factors may influence the use which children make of technology. These include the time parents put aside to explore the Web with their children, the extent to which children are encouraged to experiment, and a cultural context which encourages a move from entertainment uses to more sophisticated uses.

The findings reported in this study suggest that IT at school does at times compensate for social disparities and comparative advantage in IT access, for example where school use of computers appears to balance out the differences between boys' and girls' basic computer skills. In the range of advanced skills, however, schools do not appear to be effectively compensating for social difference. The reason may be the difference between the level of teachers' basic and advanced skills. It therefore seems clear that, if schools are to compensate for social and economic differences, and provide common competencies across the population, it is important to improve teachers' advanced IT skills.

## Endnotes

1 *Real Time: Computers, Change and Schooling*, Commonwealth of Australia, Canberra 1999.

2 The matching of postcodes to the ABS socio-economic indices is in terms of the indices developed from CDA91 (1991 Population Census data), the development of which is reported in the ABS Information Paper *1991 Census—Socio-Economic Indexes for Areas* (2912.0).



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## Introduction

The application of science and technological innovation to industrial processes influences the strength and competitiveness of industry by providing a basis for technological change, encouraging economic growth and development.

Australia has a range of statistics relating to science and innovation issues, most of which are compiled by the ABS and summarised in this chapter. The key indicators relate to human resources in science and technology, Australia's research and development (R&D) effort, in terms of both expenditure on and the human resources devoted to R&D activities, and the extent to which businesses innovate. Australia's statistics in this field are based on international standards, particularly the *Frascati Manual* developed by the Organisation for Economic Co-operation and Development (OECD), which is the basic international source of methodology for collecting and using R&D statistics.

A number of other indicators, notably patents and bibliometrics, are compiled by the Department of Industry, Science and Resources and are reported in the Commonwealth Government's Science and Technology Statement. These indicators have not been included in this chapter.

## Human resources in the science and technology field

For statistical purposes the field of science and technology (S&T) in its broadest sense includes the social sciences and humanities as well as the natural sciences and engineering. Under this broad view of S&T, people in the field are considered to include those who have either completed tertiary education, regardless of their area of study, or have an occupation in S&T, or

both. Statistically they are referred to as Human Resources in Science and Technology (HRST).

Analysis of the 1991 and 1996 Population Censuses shows that, in terms of this broad view of the S&T field, the number of persons in S&T as a proportion of the Australian population aged 15 and over increased from 15% in 1991 to 18% in 1996 (table 25.1).

People in the S&T field can be further categorised in terms of their tertiary qualifications and their occupation. Tertiary qualifications include under-graduate diplomas, bachelor degrees, postgraduate diplomas and higher degrees. S&T occupations include professionals and specialist managers.

Between 1991 and 1996, people (human resources) in the S&T field categorised in terms of qualifications (HRSTQ) increased from 11% of the population to 14%; people in the field categorised in terms of occupations (HRSTO) increased from 10% to 12%. The largest increase was in persons with S&T qualifications but not employed in S&T occupations (HRSTQ non-core) which increased by 32%. Persons with S&T qualifications and in S&T occupations (HRSTC) increased by 27%, while those without S&T qualifications but in S&T occupations (HRSTO non-core) increased by 17%.

Persons aged 35–44 accounted for 29% of persons with S&T qualifications in 1996, while those aged 25–34 made up a further 27% (table 25.2).

Females accounted for 54% of persons with S&T qualifications.

Of persons with S&T qualifications, 56% had bachelor degrees, 25% undergraduate diplomas, 10% higher degrees and 9% postgraduate diplomas.

In 1996, males accounted for 53% of persons employed in S&T occupations (table 25.3). Of Health professionals, only 26% were male, while 92% of Building and engineering professionals were male.

### 25.1 HUMAN RESOURCES IN THE SCIENCE AND TECHNOLOGY FIELD

Human resources in the S&T field (HRST)

Year	HRSTQ non-core(a)	HRSTC(b)	HRSTO non-core(c)	Total	Population(d)	HRST as a proportion of population
	'000	'000	'000	'000	'000	%
1991	685	811	490	1 987	13 018	15
1996	905	1 033	575	2 512	13 915	18

(a) Human resources in S&T categorised in terms of qualifications, but not employed in S&T occupations. (b) Human resources with S&T qualifications and in S&T occupations (i.e. core (C)). (c) Human resources in S&T categorised in terms of occupations, but without S&T qualifications. (d) All persons 15 years and older, excluding overseas visitors.

Source: *Unpublished data, 1991 and 1996 Censuses of Population and Housing.*

**25.2 PERSONS WITH S&T QUALIFICATIONS, By Age and Sex—1996**

	Higher degree	Postgraduate diploma	Bachelor degree	Undergraduate diploma	Total
Age group (years)	'000	'000	'000	'000	'000
<b>Males</b>					
15–24	1	2	53	9	64
25–34	21	15	162	28	226
35–44	41	27	151	43	262
45–54	38	17	97	42	194
55–64	16	6	39	22	84
65 and over	11	3	36	22	71
<i>Total</i>	127	70	538	165	899
<b>Females</b>					
15–24	1	4	81	18	104
25–34	16	31	184	70	300
35–44	23	43	145	98	309
45–54	16	24	78	68	187
55–64	5	8	28	36	77
65 and over	3	4	23	32	61
<i>Total</i>	64	114	539	322	1 038
<b>Persons</b>					
15–24	2	6	134	26	168
25–34	36	45	346	98	526
35–44	64	70	296	141	570
45–54	54	42	175	110	381
55–64	22	13	67	59	161
65 and over	14	7	58	53	132
<b>Total</b>	<b>191</b>	<b>183</b>	<b>1 077</b>	<b>487</b>	<b>1 938</b>

Source: Unpublished data, 1996 Census of Population and Housing.

**25.3 PERSONS IN S&T OCCUPATIONS, By Age and Sex—1996**

	Professionals						
	Specialist managers	Natural and physical science	Building and engineering	Computing	Health	Other	Total
Age group (years)	'000	'000	'000	'000	'000	'000	'000
<b>Males</b>							
15–24	7	2	8	7	3	30	57
25–34	45	8	23	25	17	100	217
35–44	73	8	24	21	21	124	272
45–54	64	6	19	9	16	100	214
55–64	19	2	8	1	8	37	75
65 and over	3	0	2	0	4	8	17
<i>Total</i>	210	27	82	63	69	399	851
<b>Females</b>							
15–24	7	2	1	2	16	48	76
25–34	26	6	3	8	55	128	225
35–44	28	3	1	6	67	138	243
45–54	21	2	1	2	44	94	164
55–64	5	0	0	0	14	23	43
65 and over	1	0	0	0	1	3	6
<i>Total</i>	88	13	6	18	197	434	756
<b>Persons</b>							
15–24	14	4	9	9	19	78	133
25–34	71	14	25	33	72	227	442
35–44	101	12	25	26	89	262	515
45–54	85	8	20	11	59	194	378
55–64	24	2	8	2	22	60	117
65 and over	3	0	2	0	5	12	23
<b>Total</b>	<b>298</b>	<b>40</b>	<b>89</b>	<b>81</b>	<b>266</b>	<b>833</b>	<b>1 607</b>

Source: Unpublished data, 1996 Census of Population and Housing.

## Expenditure and human resources devoted to R&D

The OECD defines R&D to comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of people, culture and society, and the use of this stock of knowledge to devise new applications.

Statistics on the amount of expenditure and human resources devoted to R&D in the business sector are collected annually. Comparable statistics on the higher education, general government and private non-profit sectors are collected biennially. Tables 25.4 and 25.5 summarise the latest statistics available.

## Expenditure on R&D—how does Australia compare internationally?

The most commonly used indicator for comparison purposes is the ratio of expenditure on R&D to Gross Domestic Product. As table 25.6 shows, in 1996–97 Australia spent 1.68% of its GDP on R&D, ranking it slightly above Canada, but well below Japan (2.83%), Korea (2.79%), Switzerland (2.74%), the United States (2.62%), Finland (2.58%), France (2.32%), Germany (2.29%), the Netherlands (2.09%), Denmark (2.01%) and the United Kingdom (1.94%).

In terms of business enterprise R&D, Australia's ratio of R&D expenditure to GDP (0.80%) is again below the ratios for the industrialised countries referred to earlier, and is also below the rate for Canada (0.99%).

**25.4 EXPENDITURE ON R&D, By Sector**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m
Business	2 861.9	3 119.2	3 508.3	4 343.1	4 200.2	4 043.8
General government						
Commonwealth	1 155.4	n.a.	1 196.7	n.a.	1 265.6	n.a.
State	668.5	n.a.	785.9	n.a.	824.6	n.a.
Total	1 823.9	n.a.	1 982.6	n.a.	2 090.2	n.a.
Higher education(a)	1 695.2	n.a.	1 829.6	2 039.1	2 307.6	n.a.
Private non-profit	101.9	n.a.	155.7	n.a.	171.4	n.a.
<b>Total</b>	<b>6 482.9</b>	<b>n.a.</b>	<b>7 476.2</b>	<b>n.a.</b>	<b>8 769.4</b>	<b>n.a.</b>

(a) Data for the calendar year ending within the financial year shown.

Source: Research and Experimental Development, Business Enterprises, Australia (8104.0); Research and Experimental Development, Higher Education Organisations, Australia (8111.0); Research and Experimental Development, All Sector Summary, Australia (8112.0).

**25.5 HUMAN RESOURCES DEVOTED TO R&D, by Sector**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	'000 Person years	'000 Person years	'000 Person years	'000 Person years	'000 Person years	'000 Person years
Business	22.9	23.7	25.8	27.2	26.5	24.4
General government						
Commonwealth	11.0	n.a.	10.7	n.a.	10.3	n.a.
State	8.8	n.a.	8.7	n.a.	9.2	n.a.
Total	19.8	n.a.	19.4	n.a.	19.5	n.a.
Higher education(a)	35.4	n.a.	40.1	n.a.	42.7	n.a.
Private non-profit	1.4	n.a.	1.7	n.a.	2.1	n.a.
<b>Total</b>	<b>79.5</b>	<b>n.a.</b>	<b>87.0</b>	<b>n.a.</b>	<b>90.8</b>	<b>n.a.</b>

(a) Data for the calendar year ending within the financial year shown.

Source: Research and Experimental Development, Business Enterprises, Australia (8104.0); Research and Experimental Development, All Sector Summary, Australia (8112.0).

For government sector R&D as a percentage of GDP Australia ranks higher. A ratio to GDP of 0.40% places it fifth in the group of OECD member countries for which data are available, behind only Iceland (0.62%), France (0.47%), Korea (0.45%) and Finland (0.41%). Government sector R&D as a percentage of GDP is much higher for Australia than for Japan, the United States, and the United Kingdom.

For the higher education sector, Australia also ranks highly. With a ratio to GDP of 0.45%, it ranks behind only Switzerland (0.67%), the Netherlands (0.60%) and Finland (0.47%). However, the Australian ratio is very similar to the ratios for a number of other countries including Japan, Germany and Denmark.

### Sources of funds for expenditure on R&D

In 1996–97, the business enterprise sector funded 47% of all Australian R&D. This compares with 37% recorded in 1986–87. The Commonwealth Government funded 38% of R&D in 1996–97 (down from 50% in 1986–87) and the State Governments funded 8% in 1996–97 (down from 10% in 1986–87).

In 1996–97, 93% of funding for R&D carried out by businesses came from the business sector, and it remained at about this level for the preceding decade. Commonwealth government organisations provided 3% of funding for business R&D expenditure in 1996–97.

About 87% of Commonwealth government sector R&D was funded by Commonwealth government organisations in 1996–97. The Commonwealth government proportion of self-funding dropped from 96% over the preceding decade, with the business sector and the private non-profit sector making up most of the remainder, contributing 6% and 5% respectively in 1996–97.

About 72% of State government R&D was funded by State government organisations in 1996–97. This is significantly lower than a decade earlier, when the proportion was 82%. The private non-profit sector funded 14% of the State government R&D in 1996–97, an increase from 4% a decade earlier.

About 88% of higher education R&D funding in 1996–97 came from the Commonwealth Government (compared with 90% in 1986–87). Business enterprises provided 5% of the funding in 1996–97, up from 2% a decade earlier.

### 25.6 EXPENDITURE ON R&D AS A PERCENTAGE OF GDP, OECD Countries—1996–97

	Business	Government	Higher education	Total(a)
Country	%	%	%	%
Japan	2.01	0.27	0.42	2.83
Korea	2.04	0.45	0.26	2.79
Switzerland	1.94	0.07	0.67	2.74
United States	1.92	0.23	0.39	2.62
Finland	1.71	0.41	0.47	2.58
France	1.43	0.47	0.39	2.32
Germany	1.51	0.35	0.42	2.29
Netherlands	1.10	0.37	0.60	2.09
Denmark	1.25	0.32	0.42	2.01
United Kingdom	1.26	0.28	0.38	1.94
<b>Australia</b>	<b>0.80</b>	<b>0.40</b>	<b>0.45</b>	<b>1.68</b>
Canada	0.99	0.26	0.36	1.63
Iceland	0.47	0.62	0.36	1.51
Czech Republic	0.64	0.33	0.09	1.07
Italy	0.56	0.22	0.25	1.03
Spain	0.42	0.16	0.28	0.87
Poland	0.31	0.24	0.21	0.76
Hungary	0.29	0.19	0.16	0.66
Turkey	0.12	0.05	0.28	0.45

(a) Includes private non-profit.

Source: *Main Science and Technology Indicators 1998—2*, OECD, Paris, 1999.

Commonwealth government organisations funded 29% of the R&D of the private non-profit sector in 1996–97, while the contribution by State Governments was 11%.

Tables 25.7 and 25.8 show the data for 1986–87 and 1996–97 respectively.

## Business sector

Business expenditure on R&D in Australia in 1997–98 (table 25.9) fell for the second consecutive year. Expenditure fell by 4% in

1997–98 compared to 1996–97, and human resources devoted to R&D fell by 8%.

The decrease in R&D expenditure between 1996–97 and 1997–98 was mainly attributable to the Mining and Manufacturing industries. The Mining industry recorded a 24% decrease in expenditure in 1997–98, following a 4% increase in the previous year, while the Manufacturing industry recorded a fall of 5% in 1997–98, following a 1% fall in 1996–97. Other industries, in total, recorded a 7% increase, following a fall of 8% the previous year.

### 25.7 EXPENDITURE ON R&D, Sector by Source of Funds—1986–87

Sector	Commonwealth Government		State Government		Businesses		Private non-profit and other Australian(a)		Overseas		Total
	\$m	% of total	\$m	% of total	\$m	% of total	\$m	% of total	\$m	% of total	\$m
Business	62.0	4.9	3.9	0.3	1 190.0	93.7	0.7	0.1	12.9	1.0	1 269.6
General government											
Commonwealth	754.4	96.0	3.8	0.5	22.9	2.9	0.5	0.1	4.4	0.6	785.9
State	30.5	8.5	294.6	82.3	18.0	5.0	14.1	3.9	0.8	0.2	357.9
Total	784.9	68.6	298.4	26.1	40.9	3.6	14.6	1.3	5.2	0.5	1 143.8
Higher education(b)	795.3	90.2	12.0	1.4	18.5	2.1	49.5	5.6	6.4	0.7	881.7
Private non-profit	20.0	37.9	6.7	12.7	2.5	4.7	19.1	36.2	4.5	8.5	52.8
<b>Total</b>	<b>1 662.2</b>	<b>49.6</b>	<b>321.0</b>	<b>9.6</b>	<b>1 251.8</b>	<b>37.4</b>	<b>83.9</b>	<b>2.5</b>	<b>29.0</b>	<b>0.9</b>	<b>3 347.9</b>

(a) Includes funds provided via government levies. (b) Data for calendar year 1986.

Source: Research and Experimental Development, All Sector Summary, Australia (8112.0).

### 25.8 EXPENDITURE ON R&D, Sector by Source of Funds—1996–97

Sector	Commonwealth Government		State Government		Businesses		Private non-profit and other Australian(a)		Overseas		Total
	\$m	% of total	\$m	% of total	\$m	% of total	\$m	% of total	\$m	% of total	\$m
Business	101.6	2.5	4.8	0.1	3 817.9	92.6	65.4	1.6	134.2	3.3	4 123.9
General government											
Commonwealth	1 105.2	87.3	9.1	0.7	76.6	6.1	61.6	4.9	13.1	1.0	1 265.6
State	64.7	7.8	596.6	72.4	42.3	5.1	115.3	14.0	5.7	0.7	824.6
Total	1 169.9	56.0	605.7	29.0	118.9	5.7	176.9	8.5	18.8	0.9	2 090.2
Higher education(b)	2 033.1	88.1	51.0	2.2	120.7	5.2	78.2	3.4	24.6	1.1	2 307.6
Private non-profit	49.0	28.6	18.1	10.6	29.9	17.4	67.9	39.6	6.5	3.8	171.4
<b>Total</b>	<b>3 353.6</b>	<b>38.6</b>	<b>679.6</b>	<b>7.8</b>	<b>4 087.4</b>	<b>47.0</b>	<b>388.3</b>	<b>4.5</b>	<b>184.1</b>	<b>2.1</b>	<b>8 693.0</b>

(a) Includes funds provided via government levies. (b) Data for calendar year 1996.

Source: Research and Experimental Development, All Sector Summary, Australia (8112.0).

## 25.9 BUSINESSES, R&amp;D Resources by Industry of Business

	Businesses			Expenditure on R&D			Effort on R&D		
	1995-96	1996-97	1997-98	1995-96	1996-97	1997-98	1995-96 '000 person years	1996-97 '000 person years	1997-98 '000 person years
Industry of business	no.	no.	no.	\$m	\$m	\$m			
Mining (including services to mining)	129	108	104	498	517	392	1.1	1.1	1.0
Manufacturing									
Food, beverage and tobacco	189	171	147	291	232	179	1.3	1.3	1.1
Textile, clothing, footwear and leather	68	66	55	26	21	22	0.2	0.2	0.2
Wood and paper product	42	40	37	184	191	117	0.3	0.3	0.3
Printing, publishing and recorded media	49	39	39	23	17	19	0.2	0.2	0.2
Petroleum, coal, chemical and associated product	369	343	307	327	309	308	2.4	2.4	2.3
Non-metallic mineral product	84	77	61	82	66	72	0.4	0.5	0.5
Metal product	235	206	182	326	365	334	2.0	1.6	1.4
Motor vehicle and part and other transport equipment	142	127	122	415	401	436	2.5	2.7	2.7
Photographic and scientific equipment	106	100	95	131	91	93	1.1	0.9	0.9
Electronic and electrical equipment and appliance	387	360	326	389	423	442	3.0	3.1	2.9
Industrial machinery and equipment	292	283	245	128	144	123	1.3	1.3	1.2
Other manufacturing	95	78	73	16	46	36	0.2	0.2	0.2
<i>Total manufacturing</i>	<i>2 058</i>	<i>1 890</i>	<i>1 689</i>	<i>2 339</i>	<i>2 305</i>	<i>2 182</i>	<i>14.8</i>	<i>14.6</i>	<i>13.7</i>
Other industries									
Wholesale and retail trade	350	364	338	338	338	319	2.7	2.7	2.5
Finance and insurance	42	46	39	124	96	85	1.2	1.1	0.4
Property and business services	786	739	752	672	587	618	5.0	5.0	4.9
Scientific research	97	94	95	148	147	160	1.0	1.0	1.1
Other n.e.c.	174	179	178	223	210	289	1.3	1.0	0.9
<i>Total other industries</i>	<i>1 449</i>	<i>1 422</i>	<i>1 402</i>	<i>1 505</i>	<i>1 378</i>	<i>1 470</i>	<i>11.3</i>	<i>10.8</i>	<i>9.8</i>
<b>Total all industries</b>	<b>3 636</b>	<b>3 420</b>	<b>3 195</b>	<b>4 343</b>	<b>4 200</b>	<b>4 044</b>	<b>27.2</b>	<b>26.5</b>	<b>24.4</b>

Source: Research and Experimental Development, Business Enterprises, Australia (8104.0).

In terms of fields of research (table 25.10), almost all business sector R&D expenditure took place in the Natural sciences, technologies and engineering. Of total R&D expenditure, 15% was in Manufacturing and process technologies and engineering, 13% in Computer software, 11% in Communications technologies and 11% in Mechanical and industrial engineering.

A slightly different pattern applied to human resources devoted to R&D, with 19% in Computer software, 12% in Mechanical and industrial engineering, 12% in Manufacturing and process technologies and engineering, and 9% in Other general engineering.

## 25.10 BUSINESSES, R&amp;D Resources by Field of Research—1997–98

Field of research	Type of expenditure				Human resources ‘000 person years
	Capital expenditure	Labour costs	Other current expenditure	Total	
	\$m	\$m	\$m	\$m	
Natural sciences, technologies and engineering					
Mathematical sciences	1.2	5.0	5.5	11.7	0.1
Physical sciences	3.5	20.0	17.6	41.1	0.3
Chemical sciences	14.2	61.5	62.6	138.4	0.9
Earth sciences	13.2	44.2	82.1	139.5	0.5
Information systems and technologies	15.5	102.4	69.1	187.1	1.4
Computer software	32.0	299.9	202.6	534.5	4.7
Communications technologies	20.9	134.1	282.6	437.6	1.9
Other information, computers and communication technologies	19.6	65.3	78.5	163.4	1.0
Manufacturing and process technologies and engineering	101.0	187.8	317.8	606.6	2.9
Industrial biotechnology and food sciences	18.6	47.4	46.1	112.1	0.7
Material sciences and technologies	19.7	72.0	95.3	187.0	1.0
Other applied sciences and technologies	8.4	49.8	49.1	107.2	0.8
Mechanical and industrial engineering	36.3	170.8	218.4	425.6	3.0
Mining and mineral processing	55.3	52.1	188.9	296.3	0.7
Other general engineering	69.8	127.0	114.0	310.7	2.2
Biological sciences	2.2	25.2	32.6	60.0	0.4
Agricultural sciences	9.4	36.4	37.5	83.3	0.6
Medical and health sciences	13.6	73.2	107.3	194.0	1.2
<i>Total natural sciences, technologies and engineering</i>	<i>454.5</i>	<i>1 574.1</i>	<i>2 007.5</i>	<i>4 036.1</i>	<i>24.3</i>
Social sciences and humanities					
Social sciences	0.5	3.9	1.7	6.2	0.1
Humanities	0.1	0.9	0.5	1.5	0.0
<i>Total social sciences and humanities</i>	<i>0.6</i>	<i>4.8</i>	<i>2.2</i>	<i>7.7</i>	<i>0.1</i>
<b>Total</b>	<b>455.2</b>	<b>1 578.9</b>	<b>2 009.7</b>	<b>4 043.8</b>	<b>24.4</b>

Source: Research and Experimental Development, Business Enterprises, Australia (8104.0).



## General government sector

Expenditure on R&D carried out by general government organisations in Australia in 1996–97 was estimated to be \$2,090m, an increase of 5% over expenditure in 1994–95 (table 25.4).

As shown in table 25.11, the fields of research in which most government R&D expenditure took place were: Agricultural sciences (\$617m, or 30%), Earth sciences (\$260m, or 12%), Biological

sciences (\$240m, or 11%), Medical and health sciences (\$191m, or 9%) and Applied sciences and technologies (\$191m, or 9%).

A slightly different pattern applied to human resources devoted to R&D (table 25.12), with Agricultural sciences accounting for 31%, Medical and health sciences 14%, Biological sciences 11%, Applied sciences and technologies 9%, Information, computers and communication technologies 8% and Earth sciences 7%.

### 25.11 GENERAL GOVERNMENT ORGANISATIONS, Expenditure on R&D by Field of Research—1996–97

Field of research	Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total
	\$m	\$m	\$m	\$m	\$m
Natural sciences, technologies and engineering					
Mathematical sciences	0.9	1.0	22.3	8.9	<b>33.0</b>
Physical sciences	3.8	11.9	43.9	28.9	<b>88.6</b>
Chemical sciences	3.4	4.7	42.9	29.7	<b>80.8</b>
Earth sciences	60.4	10.2	85.5	104.3	<b>260.4</b>
Information, computers and communication sciences	8.5	16.1	93.3	60.5	<b>178.4</b>
Applied sciences and technologies	10.9	14.0	99.7	66.0	<b>190.6</b>
General engineering	5.7	7.9	63.6	42.3	<b>119.6</b>
Biological sciences	16.6	10.9	113.2	99.1	<b>239.8</b>
Agricultural sciences	39.8	23.3	298.3	255.4	<b>616.8</b>
Medical and health sciences	4.5	11.0	108.1	67.6	<b>191.1</b>
Total	154.5	111.0	970.8	762.7	<b>1 999.1</b>
Social sciences and humanities					
Accounting and finance	0.0	0.0	0.1	0.0	<b>0.1</b>
Economics	1.6	1.0	19.2	13.0	<b>34.7</b>
Political sciences	0.0	0.1	1.9	1.3	<b>3.3</b>
Sociology	0.6	0.2	3.1	1.9	<b>5.8</b>
Law	0.0	0.0	3.5	2.0	<b>5.6</b>
Psychology	0.3	0.5	3.4	2.2	<b>6.4</b>
Education	0.1	1.0	4.8	3.1	<b>9.1</b>
Other social sciences	2.4	0.5	11.9	6.4	<b>21.1</b>
Humanities	0.9	0.2	2.1	2.0	<b>5.1</b>
Total	5.9	3.5	49.9	31.9	<b>91.1</b>
Total	160.4	114.5	1 020.7	794.6	<b>2 090.2</b>

Source: Research and Experimental Development, General Government and Private Non-profit Organisations, Australia (8109.0).

**25.12 GENERAL GOVERNMENT ORGANISATIONS, Human Resources Devoted to R&D by Field of Research and Type of Employee—1996–97**

Field of research	Researchers '000 person years	Technicians '000 person years	Other supporting staff '000 person years	Total '000 person years
Natural sciences, technologies and engineering				
Mathematical sciences	0.3	0.1	0.1	<b>0.4</b>
Physical sciences	0.3	0.2	0.2	<b>0.8</b>
Chemical sciences	0.3	0.3	0.2	<b>0.7</b>
Earth sciences	0.7	0.4	0.3	<b>1.4</b>
Information, computers and communication technologies	0.9	0.3	0.3	<b>1.5</b>
Applied sciences and technologies	0.7	0.6	0.4	<b>1.7</b>
General engineering	0.4	0.4	0.2	<b>1.1</b>
Biological sciences	0.8	0.8	0.5	<b>2.2</b>
Agricultural sciences	2.5	2.5	1.1	<b>6.1</b>
Medical and health sciences	1.5	1.0	0.3	<b>2.8</b>
Total	8.5	6.6	3.5	<b>18.6</b>
Social sciences and humanities				
Accounting and finance	0.0	0.0	0.0	<b>0.0</b>
Economics	0.3	0.0	0.0	<b>0.4</b>
Political sciences	0.0	0.0	0.0	<b>0.0</b>
Sociology	0.0	0.0	0.0	<b>0.1</b>
Law	0.0	0.0	0.0	<b>0.0</b>
Psychology	0.0	0.0	0.0	<b>0.1</b>
Education	0.1	0.0	0.0	<b>0.1</b>
Other social sciences	0.2	0.0	0.0	<b>0.2</b>
Humanities	0.0	0.0	0.0	<b>0.0</b>
Total	0.7	0.1	0.1	<b>0.9</b>
Total	9.2	6.7	3.6	<b>19.5</b>

Source: Research and Experimental Development, General Government and Private Non-profit Organisations, Australia (8109.0).

## Higher education sector

Estimated expenditure on R&D carried out in Australia by the higher education sector in 1996 was \$2,308m, an increase of 13% over expenditure in 1995, and 26% over expenditure in 1994 (table 25.4).

Table 25.13 shows that the fields of research in which most higher education R&D expenditure took place in 1996 were Medical and health sciences (\$491m, or 21% of total expenditure),

Biological sciences (\$286m, or 12%) and the Humanities (\$184m, or 8%). The Social sciences in total accounted for \$446m, or 19% of total R&D expenditure for this sector. Direct labour costs accounted for 45% of total R&D expenditure.

A slightly different pattern applied to human resources devoted to R&D (table 25.14), with 18% on Medical and health sciences, 12% on the Humanities, 11% on Biological sciences, and the Social sciences in total accounting for 23%.

**25.13 HIGHER EDUCATION ORGANISATIONS, Type of Expenditure on R&D by Field of Research—1996**

Field of research	Land and buildings	Other capital expenditure	Direct labour costs	Scholarships	Other current expenditure	Total
	\$m	\$m	\$m	\$m	\$m	\$m
Natural sciences, technologies and engineering						
Mathematical sciences	0.4	2.3	27.4	3.4	22.2	<b>55.7</b>
Physical sciences	1.1	8.6	46.5	4.7	41.3	<b>102.3</b>
Chemical sciences	2.0	11.3	46.3	8.6	41.6	<b>109.8</b>
Earth sciences	0.7	8.7	44.6	5.7	50.4	<b>110.0</b>
Information, computers and communication technologies	11.8	9.4	57.3	6.8	53.9	<b>139.3</b>
Applied sciences and technologies	2.4	8.5	36.6	6.3	38.3	<b>92.2</b>
General engineering	5.4	12.8	66.6	11.1	67.4	<b>163.3</b>
Biological sciences	5.7	20.8	122.6	14.5	122.7	<b>286.3</b>
Agricultural sciences	3.6	6.7	52.0	7.8	57.7	<b>127.8</b>
Medical and health sciences	6.0	22.8	232.4	18.4	211.8	<b>491.4</b>
Total	39.0	112.0	732.4	87.3	707.4	<b>1 678.0</b>
Social sciences and humanities						
Accounting and finance	0.0	0.6	11.2	0.4	7.9	<b>20.1</b>
Economics	0.2	2.0	30.5	2.6	24.4	<b>59.7</b>
Political sciences	0.1	0.9	14.9	1.6	13.7	<b>31.3</b>
Sociology	0.2	0.5	13.9	1.7	10.9	<b>27.2</b>
Law	0.1	0.9	20.8	1.0	14.5	<b>37.2</b>
Psychology	2.7	2.0	25.7	2.4	19.4	<b>52.1</b>
Education	1.3	2.8	45.4	2.8	36.2	<b>88.5</b>
Other social sciences	2.8	3.7	61.2	6.3	55.7	<b>129.7</b>
Humanities	1.0	5.4	93.1	13.9	70.0	<b>183.6</b>
Total	8.4	19.0	316.8	32.7	252.7	<b>629.5</b>
Total	47.4	131.0	1 049.1	119.9	960.1	<b>2 307.6</b>

Source: Research and Experimental Development, Higher Education Organisations, Australia (8111.0).

**25.14 HIGHER EDUCATION ORGANISATIONS, Human Resources Devoted to R&D by Field of Research and Type of Employee—1996**

Field of research	Researchers		Supporting staff '000 person years	Total '000 person years
	Academics '000 person years	Postgraduates '000 person years		
Natural sciences, technologies and engineering				
Mathematical sciences	0.4	0.6	0.1	<b>1.0</b>
Physical sciences	0.5	0.6	0.3	<b>1.5</b>
Chemical sciences	0.6	1.0	0.4	<b>2.0</b>
Earth sciences	0.5	0.9	0.4	<b>1.7</b>
Information, computers and communication technologies	0.7	1.3	0.4	<b>2.4</b>
Applied sciences and technologies	0.4	1.0	0.3	<b>1.6</b>
General engineering	0.7	1.6	0.5	<b>2.8</b>
Biological sciences	1.2	2.4	1.1	<b>4.8</b>
Agricultural sciences	0.5	1.3	0.5	<b>2.2</b>
Medical and health sciences	2.4	3.4	1.8	<b>7.6</b>
Total	7.8	14.1	5.8	<b>27.7</b>
Social sciences and humanities				
Accounting and finance	0.2	0.2	0.0	<b>0.3</b>
Economics	0.4	0.5	0.1	<b>1.1</b>
Political sciences	0.2	0.5	0.1	<b>0.7</b>
Sociology	0.2	0.4	0.1	<b>0.6</b>
Law	0.3	0.3	0.1	<b>0.7</b>
Psychology	0.3	0.6	0.2	<b>1.1</b>
Education	0.6	1.6	0.2	<b>2.4</b>
Other social sciences	0.7	2.0	0.3	<b>3.0</b>
Humanities	1.1	3.6	0.3	<b>5.1</b>
Total	3.9	9.7	1.5	<b>15.1</b>
Total	11.7	23.8	7.3	<b>42.7</b>

Source: Research and Experimental Development, Higher Education Organisations, Australia (8111.0).

## Private non-profit sector

Expenditure on R&D carried out by private non-profit organisations in 1996–97 (\$171m) increased by 10% (table 25.4) over 1994–95 expenditure.

Medical and health sciences comprised the major field of research for R&D expenditure in the private non-profit sector, accounting for \$122m (71%) of the sector's total R&D expenditure in

1996–97. Labour costs continued to be the main component of R&D expenditure (51%) (table 25.15).

Medical and health sciences also comprised the leading field of research in terms of human resource use. Table 25.16 shows the human resources devoted to R&D in terms of field of research, by type of employee. Researchers predominated, with 1,193 person years, 56% of the total.

**25.15 PRIVATE NON-PROFIT ORGANISATIONS, Type of Expenditure on R&D by Field of Research—1996–97**

Field of research	Land and buildings	Other capital expenditure	Labour costs	Other current expenditure	Total
	\$m	\$m	\$m	\$m	\$m
Natural sciences, technologies and engineering					
Physical sciences	0.0	0.0	0.9	0.5	1.4
Earth sciences	0.0	0.1	1.0	0.5	1.6
General engineering	0.2	0.1	0.5	0.7	1.5
Biological sciences	2.2	2.1	15.8	11.6	31.6
Medical and health sciences	5.7	10.4	62.3	43.2	121.7
Other natural sciences, technologies and engineering	0.0	0.1	1.6	1.0	2.7
Total	8.1	12.7	82.2	57.5	160.5
Social sciences and humanities					
Education	0.1	0.3	3.5	3.2	7.0
Other social sciences	0.0	0.1	1.4	0.9	2.4
Humanities	0.0	0.0	0.6	0.9	1.5
Total	0.1	0.4	5.5	5.0	10.9
Total	8.2	13.1	87.6	62.4	171.4

Source: Research and Experimental Development, General Government and Private Non-profit Organisations, Australia (8109.0).

**25.16 PRIVATE NON-PROFIT ORGANISATIONS, Human Resources Devoted to R&D by Field of Research and Type of Employee—1996–97**

Field of research	Researchers	Technicians	Other supporting staff	Total
	person years	person years	person years	person years
Natural sciences, technologies and engineering				
Physical sciences	12	2	1	14
Earth sciences	16	2	6	24
General engineering	10	1	2	12
Biological sciences	207	159	45	412
Medical and health sciences	866	476	203	1 544
Other natural sciences, technologies and engineering	22	5	3	30
Total	1 132	644	261	2 037
Social sciences and humanities				
Education	37	8	8	53
Other social sciences	18	3	4	25
Humanities	7	1	1	9
Total	61	13	13	87
Total	1 193	657	274	2 124

Source: Research and Experimental Development, General Government and Private Non-profit Organisations, Australia (8109.0).

## Innovation statistics

Innovation is a measure of the extent to which science and technology are used within businesses to create new products or to implement new processes for the provision of goods and services. Innovation surveys provide a wider measure of the innovation process than R&D surveys.

The ABS has conducted two surveys of innovation, the first in respect of 1993–94 and a second, more comprehensive survey, in respect of 1996–97. These surveys were based on the concepts and standard questions developed jointly by the OECD and Eurostat (the statistical office for the European community). While the main ABS innovation surveys obtained data from manufacturing businesses, exploratory surveys have also been conducted for the mining, agriculture, construction and telecommunications industries.

The statistics which follow present some of the main findings from the ABS innovation surveys of manufacturing businesses only. The data include the proportion of businesses which innovate, some characteristics of innovating businesses, the reasons why businesses innovate and also some of the reasons why some businesses do not. The data are presented by business size, where small businesses are defined as those having fewer than 20 employees, medium sized businesses as those having 20 to 199 employees, and large businesses as those having 200 or more employees. The survey results relate only to businesses with employees.

As can be seen in table 25.17, just over a quarter of all manufacturing businesses were identified as undertaking technological innovation in 1996–97.

The rate of technological innovation had a strong relationship with size of business. Large businesses were over three times more likely to undertake technological innovation than small businesses.

Of businesses which undertook technological innovation, over half undertook both product and process innovation (i.e. they introduced new, or significantly technologically changed products and used new, or significantly technologically changed processes to produce their products). Only 3% of businesses introduced new processes without introducing new products. Over 8% of businesses introduced new products without using new processes.

In 1996–97, the rate of technological innovation was lower than in 1993–94, when almost one-third of manufacturing businesses undertook technological innovation. This decline was largely due to the drop in the rate of small businesses undertaking technological innovation from 28% in 1993–94 to 22% in 1996–97.

Even though only just over a quarter of manufacturing businesses undertook technological innovation, because of the higher proportion of larger businesses, innovative businesses in total contributed about two-thirds of the total employment and three-quarters of the total turnover of all manufacturing businesses.

Almost two-thirds of large businesses had staff dedicated to innovation work, while less than one-quarter of small businesses had staff dedicated to this work. Large businesses were almost three times more likely than small businesses to take staff off-line to undertake innovation work.

**25.17 MANUFACTURING BUSINESSES, Proportion Undertaking Technological Innovation by Business Size—1996–97**

	Technological innovation			
	Product only	Process only	Product and process	Total
Business size	%	%	%	%
Small	7.7	2.6	11.3	21.6
Medium	11.3	5.9	37.7	55.0
Large	10.4	5.8	64.0	80.2
<b>All</b>	<b>8.1</b>	<b>3.0</b>	<b>14.8</b>	<b>26.0</b>

Source: *Innovation in Manufacturing, Australia (8116.0)*.

## Barriers to starting technological innovation

Regardless of whether or not a business was already undertaking technological innovation, over two-thirds of all manufacturing businesses reported that there were barriers hindering them from starting technological innovation projects. Interestingly, 95% of businesses already undertaking technological innovation, indicated that there were factors inhibiting them from starting innovation projects, compared to 58% of businesses not currently undertaking any innovation.

As table 25.18 shows, the factors most frequently identified as important barriers to starting innovation projects were 'government policy and taxation' and 'current economic climate not conducive to innovation'. These were followed by 'insufficient retained earnings' and 'potential market already dominated by established businesses'. Small businesses rated 'Government policy and taxation' as the most important barrier. 'Current economic climate not conducive to innovation' was rated highest by medium sized businesses, and 'excessive economic risk perceived by this business or parent company' was rated highest by large businesses.

## Abandoned innovation projects

Only a very small percentage of businesses (9% overall) reported abandoning technological innovation projects in 1996–97. The proportion of businesses with abandoned projects ranged from 7% of small businesses to 42% of large businesses. Less than one in ten of those businesses which abandoned an innovation project reported that they were unable or made no attempt to successfully complete another technological innovation project in 1996–97.

On average, one quarter of the innovation projects started by a business were abandoned. This average was almost constant across the different categories of business size. The main reasons reported for abandoning innovation projects were: 'costs too high or hard to control' and 'competing resources or priorities'. These were the most frequently identified reasons among both small and medium businesses. However, large businesses identified 'long payback period' and 'expected low returns' more often than either of these reasons.

## Objectives of undertaking technological innovation

As table 25.19 shows, most businesses (around 90%) undertaking technological innovation rated 'reducing costs', 'maximising profits' and 'improving productivity' as important objectives of undertaking technological innovation. Most of the objectives listed in the table were considered important by a large majority of businesses.

**25.18 BARRIERS TO STARTING TECHNOLOGICAL INNOVATION—1996–97**

Barrier	Business size			
	Small	Medium	Large	All
	%	%	%	%
Potential market already dominated	33.8	48.2	56.2	<b>35.6</b>
Current economic climate	39.4	49.9	45.8	<b>40.6</b>
Market too small or unknown	28.1	46.3	54.7	<b>30.4</b>
Innovation project too large	16.5	27.4	34.0	<b>17.9</b>
Excessive risk perceived by business/parent company	30.3	47.1	64.7	<b>32.6</b>
Excessive risk perceived by financiers/investors	17.9	33.0	26.3	<b>19.6</b>
Insufficient funds to recruit staff	30.2	25.4	17.6	<b>29.5</b>
Lack of appropriate sources of finance	32.5	35.0	19.6	<b>32.6</b>
Insufficient retained earnings	36.0	37.7	24.6	<b>36.0</b>
Government standards and regulations	29.5	37.6	37.6	<b>30.5</b>
Government policy and taxation	40.3	43.7	43.4	<b>40.7</b>

Source: *Innovation in Manufacturing, Australia* (8116.0).

**25.19 OBJECTIVES OF UNDERTAKING TECHNOLOGICAL INNOVATION—1996–97**

Objective	Importance of the objective		
	Not applicable	Not important	Important
	%	%	%
Reducing costs	4.1	3.9	92.0
Maximising profits	*4.4	*3.7	91.9
Improving productivity	6.2	4.7	89.2
Responsiveness to customers	6.0	6.3	87.7
Improving quality/speed of service	6.9	5.5	87.6
Increasing market share	7.3	8.1	84.6
Being at industry forefront	11.7	8.3	79.9
Expanding product range	10.7	10.3	79.1
Improving staff safety/working conditions	11.2	10.1	78.7
Establishing a new market	10.8	11.5	77.7
Being environmentally aware	16.0	14.4	69.6
Meeting Government standards/regulations	13.4	17.2	69.5
Seeking/expanding export opportunities	31.8	17.7	50.6

Source: *Innovation in Manufacturing, Australia* (8116.0).

**Costs of undertaking innovation**

The total amount spent by manufacturing businesses on technological innovation during 1996–97 was estimated at \$3.9b. About half of this was spent on research and development (\$2.0b). A further \$1.1b was spent on tooling-up, industrial engineering and start up.

On average, businesses with expenditure on innovation activities spent \$296,100 on innovation, or \$6,300 per employee. As would be expected, expenditure on innovation increased with size of business; expenditure ranged from an average of \$61,000 for small businesses to \$4.1m for large businesses. The average innovation expenditure per employee showed the reverse trend, ranging from \$8,900 for small businesses to \$5,600 for large businesses. Similarly, the ratio of innovation expenditure to the total turnover of the business fell as size of business increased. In the case of small businesses undertaking innovation expenditure, 7% of their total turnover

on average was spent on innovative activities, while large businesses spent only 2% of their total turnover on such activities (table 25.20).

**25.20 COSTS OF UNDERTAKING TECHNOLOGICAL INNOVATION(a)—1996–97**

Business size	Turnover per employee	Innovation costs per employee	Innovation costs as a proportion of turnover
	\$'000	\$'000	%
Small	132	9	7
Medium	185	7	4
Large	266	6	2
<b>All</b>	<b>238</b>	<b>6</b>	<b>3</b>

(a) Restricted to businesses with innovation expenditure.

Source: *Innovation in Manufacturing, Australia* (8116.0).



## Effects of technological innovation on business activities and performance

It is very difficult to quantify the benefits or otherwise arising from technological innovation. In 1996–97 the ABS collected some information on the perceptions by businesses of the impact of innovation on a range of performance and activity indicators. Businesses were asked to indicate whether undertaking technological innovation had affected their levels of employment, production activities and profitability. Table 25.21 shows the proportions of innovating businesses reporting positive and negative effects of innovation in terms of those indicators. The majority of businesses reported positive effects in terms of all indicators.

**25.21 BUSINESS PERFORMANCE, Effects of Innovation Activity—1996–97**

Aspect affected	Proportion of technological innovators	
	Decrease	Increase
	%	%
Employment levels		
Management	*3.0	12.5
Research	0.3	6.8
Technical	0.5	12.7
Production	6.3	32.7
Marketing	*1.9	12.6
Administration	3.0	12.9
External consultants	0.9	9.8
Production activities		
Production levels	2.1	61.4
Cleaner production process	**0.8	26.6
Labour usage	16.7	28.8
Materials consumption	9.8	37.4
Energy consumption	8.2	30.0
Wastage	21.1	15.0
Capital utilisation	*2.3	32.8
Maintenance support	3.9	16.9
Profitability	7.3	38.1

Source: *Innovation in Manufacturing, Australia (8116.0)*.

About half of the businesses reported that undertaking technological innovation had affected the employment of the business. An increase in staffing levels was most commonly reported for all types of employee. For example, almost one-third of businesses reported increases in their employment of production staff.

In terms of production activities, 61% reported increases in production levels, while only 2% reported decreased production levels. About 37%

of technologically innovating businesses reported that materials consumption had increased, while only 10% reported a fall. About 33% had increased their capital utilisation, while only 2% reported a fall.

In terms of the profitability of the business, 38% reported that their profits had increased as a result of their innovative activities, and 7% reported a fall in their profits.

## Official organisations and administration

There are many organisations in Australia concerned in some way with the development of science and innovation.

The Commonwealth Government's commitment to science and innovation is reflected in the functions of the Department of Industry, Science and Resources. The Department is concerned with the development and maintenance of Australia's scientific and innovative capability.

A number of other Commonwealth Government organisations either support or carry out science and innovation related activities. State Governments are also involved in science and innovation through State government departments, science and technology councils and other organisations. Non-government organisations participating in scientific and innovative activities include higher education institutions, professional and learned bodies, private organisations and industry groups.

## Department of Industry, Science and Resources

The Department of Industry, Science and Resources is responsible for the majority of federally supported science and technology related industry development programs. The Department includes the Innovation and Science Division, the Australian Geological Survey Organisation, IP Australia and the Office of AusIndustry, including the Industry Research and Development Board (IRDB) programs. The Innovation and Science Division, comprising the Science and Technology Policy Branch, the International Science and Technology Policy Branch, the Innovation Policy Branch and the Science and Technology Advisory Team, is responsible for science and technology strategy, policy, analysis and awareness. It is responsible, inter alia, for the preparation of the annual Science and Technology Budget Statement.

The Department, through AusIndustry, administers the Tax Concession for Research and Development scheme, the Strategic Assistance for Research and Development (START) Program and the Cooperative Research Centres Program. The scientific and technological bodies of the portfolio include the Commonwealth Scientific and Industrial Research Organisation, the Australian Nuclear Science and Technology Organisation and the Australian Institute of Marine Science.

### **R&D Tax Concession Program**

The tax concession for R&D, which commenced from July 1985, is the focus of one of the major programs in the Government's package of measures to encourage R&D in Australia.

The concession allows companies incorporated in Australia, public trading trusts and partnerships of eligible companies, to deduct up to 125% of eligible expenditure on R&D activities when lodging their corporate tax returns.

Expenditure eligible under the scheme includes: salaries, wages and other overhead costs which are directly related to the company's Australian R&D activities; contract expenditure; and capital expenditure on R&D plant and equipment (over three years). Expenditure on acquiring, or acquiring the right to use, technology for the purposes of the company's own R&D activities is 100% deductible.

The R&D projects must also satisfy a requirement for adequate Australian content. In addition the results of the R&D must be exploited on normal commercial terms and to the benefit of Australia.

To attract the tax concession deduction, annual eligible R&D expenditure must exceed \$20,000. Where R&D is contracted to either an approved Registered Research Agency or a Cooperative Research Centre this expenditure threshold is waived.

### **Strategic Assistance for Research and Development Program**

The R&D START Program replaced the R&D Syndication Program. It encompasses and builds upon other R&D support measures to provide a flexible package of assistance to industry for research, development and commercialisation.

The Program complements the R&D Tax Concession Program.

R&D START meets the need for a program capable of funding larger projects, with more flexible funding arrangements, and aims to:

- provide a new competitive R&D scheme to replace the R&D Syndication Program;
- provide a mix of support measures based on large grants, loans and interest rate subsidies; and
- develop new market-based support measures in further consultation with industry.

There are three rounds of grants each year (every four months) to provide a timely response to companies in areas of rapidly developing technologies and markets.

The Industry Research and Development Board has flexibility to vary the combination of support to take account of variations in spillovers, closeness to market, nature of the technology and capacity to attract private finance. The basic elements are grants, loans (which will normally be at commercial rates but may have repayment deferred), and interest subsidies to lenders who participate in financing the projects.

### **Commonwealth Scientific and Industrial Research Organisation (CSIRO)**

The CSIRO was established as an independent statutory authority by the *Science and Industry Research Act 1949*, which has been amended on a number of occasions since then. Its primary role is as an applications-oriented research organisation in support of major industry sectors and selected areas of community interest, with a strong commitment to the effective transfer of its results to users.

Briefly, the CSIRO's primary statutory functions are to:

- carry out scientific research for the benefit of Australian industry, the community, national objectives, national or international responsibilities, or for any other purpose determined by the Minister; and
- encourage or facilitate the application or utilisation of the results of such research.

Other functions include dissemination and publication of scientific information, international liaison in scientific matters, and provision of services and facilities.

The CSIRO's work is planned and prioritised on a sectoral basis and conducted through core business units—CSIRO Divisions. External advice on research priorities is channelled through Sector Advisory Committees. Each sector represents an industry group, market, or natural resource of national significance. There are 22 sectors covering research in five broad groupings:

- *Agribusiness*—field crops; food processing; forestry, wood and paper industries; horticulture; meat, dairy and aquaculture; wool and textiles.
- *Environment and Natural Resources*—biodiversity; climate and atmosphere; land and water; marine.
- *Information Technology, Infrastructure and Services*—information technology and telecommunications; built environment; measurement standards; radio astronomy; services.
- *Manufacturing*—chemicals and plastics; integrated manufactured products; pharmaceuticals and human health.
- *Minerals and Energy*—coal and energy; mineral exploration and mining; mineral processing and metal production; petroleum.

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### ABS publications

*Human Resources in Science and Technology (HRST), Australia* (8149.0).

*Innovation in Manufacturing, Australia* (8116.0).

*Innovation in Mining, Australia* (8121.0).

*Research and Experimental Development, All Sector Summary, Australia* (8112.0).

*Research and Experimental Development, Businesses Enterprises, Australia* (8104.0).

*Research and Experimental Development, General Government and Private Non-profit Organisations, Australia* (8109.0).

*Research and Experimental Development, Higher Education Organisations, Australia* (8111.0).

### Other publications

OECD, Main Science and Technology Indicators, 1998–2, Paris, 1999.

### Additional information

Additional information on topics presented in this chapter may be found in the annual reports of the organisations mentioned, particularly the Department of Industry, Science and Resources and the CSIRO, and in the annual Science and Technology Statements. Further statistical information on higher education is obtainable from the Department of Education, Training and Youth Affairs.

The then Department of Industry, Science and Tourism's *Australian Business Innovation, 1996* uses science and technology indicators to give a good overview and analysis of science and technology information in Australia. It presents information on business innovation, an R&D related view of trade in manufacturing, diffusion of advanced manufacturing technologies, patents, business sector R&D and bibliometrics.

Additional information on some technology related issues, particularly on the use of information technology may be found in *Chapter 24, Communications and information technology*.

### Internet sites

Commonwealth Scientific and Industrial Research Organisation, <http://www.csiro.au>

Department of Industry, Science and Resources, <http://www.isr.gov.au>

—The Science and Technology Budget Statement 1999–2000 may be found at  
<http://www.isr.gov.au/sandt.pdf>

Organisation for Economic Co-operation and Development, <http://www.oecd.org>

—A summary of the Frascati Manual, the basic international source of methodology for collecting and using research and development statistics, can be found at <http://www.oecd.org/dsti/sti/stat-ana/prod/>



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## Introduction

The financial system in Australia can be thought of as having three overlapping components. The first component consists of financial enterprises (such as banks) and regulatory authorities, the Reserve Bank and the Australian Prudential Regulation Authority. The second consists of financial markets (for example, the bond market) and their participants (issuers such as governments, and investors such as superannuation funds). The third is the payments system—that is, the cash, cheque and electronic means by which payments are effected—and its participants (for example, banks). The interaction of these components enables funds for investment or consumption to be made available from savings in other parts of the national or international economy.

This chapter provides a summary of the structure and activities of the three financial system components as they function currently. However, the structure and activities will continue to evolve as a result of regulatory or deregulatory processes.

From 1 July 1998 a new financial regulatory framework came into effect, in response to the recommendations of the Financial System Inquiry (the Wallis Committee). Under the new structure a single prudential supervisor, the Australian Prudential Regulation Authority (APRA) was established to take over responsibility for the supervision of banks, life and general insurance companies and superannuation funds. The Australian Securities and Investments Commission (ASIC) assumed responsibility for market integrity and consumer protection across the financial system. The Reserve Bank retained

responsibility for monetary policy and the maintenance of financial stability, including stability of the payments system.

From 1 July 1999 building societies and credit unions have been supervised by APRA. From that date APRA has supervised benefit funds of friendly societies under the *Life Insurance Act 1995*, while health benefit funds of friendly societies are regulated by the Private Health Insurance Administration Council under the *National Health Act 1959*. Prior to 1 July 1999 building societies, credit unions and friendly societies were regulated under State legislation.

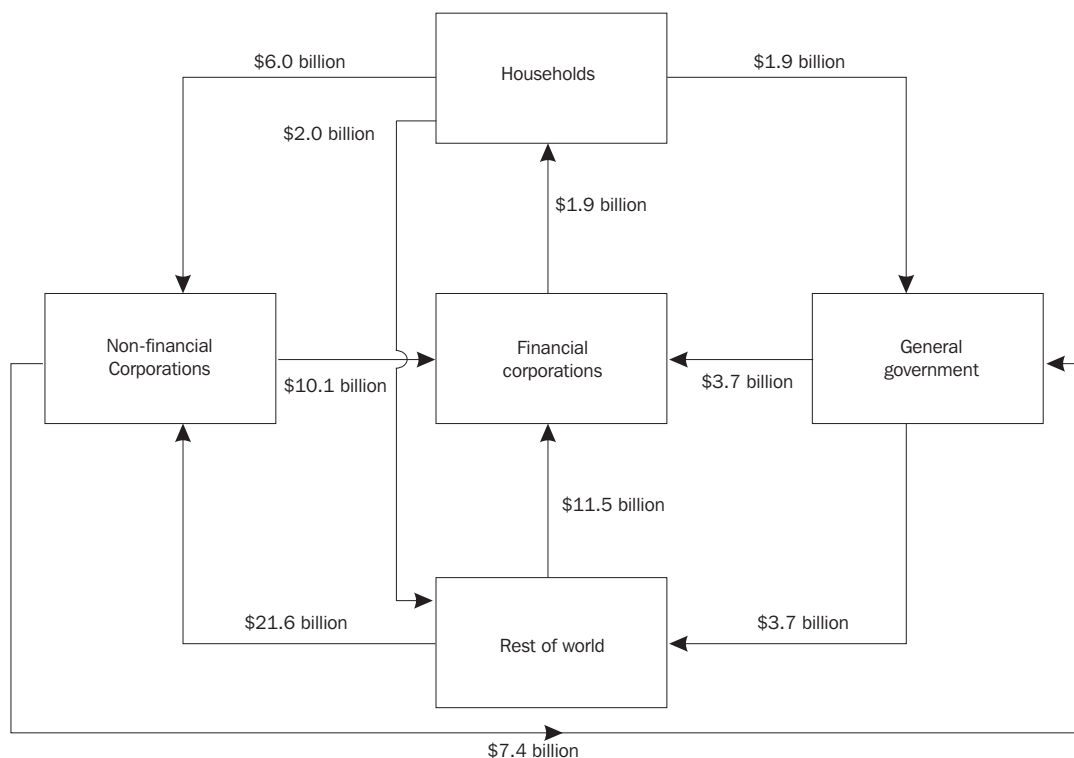
From 1 July 2000 it is expected that APRA will transfer administration of self-managed superannuation funds to the Australian Taxation Office.

From time to time the statistical frameworks applicable to the measurement of the components change. With this edition of the Year Book the contents of this chapter have been revised to conform with the 1993 edition of the *System of National Accounts (SNA93)*. The main impacts are to provide additional detail relating to institutional sectors and financial instruments.

Diagram 26.1 provides an overview of the flows of capital through the financial system. It illustrates the net financial flows between sectors during the year 1998–99. The arrows show the net flow from lenders to borrowers. Diagram 26.1 provides an overview of the flows of capital through the financial system. It illustrates the net financial flows between sectors during the year 1998–99. The arrows show the net flow from lenders to borrowers. For example, there is a \$1.9b net flow from financial corporations to households. There is also a \$10.1b net flow from non-financial corporations to financial corporations.



## 26.1 INTER-SECTORAL FINANCIAL FLOWS DURING THE YEAR 1998–99



Note: The arrows show the direction of net financial flows from lending sectors to borrowing sectors. The number relating to each arrow indicates the value of that net flow during the period. Other claims are omitted from the diagram. For this reason, inter-sectoral borrowing does not equal inter-sectoral lending.

Source: Australian National Accounts: Financial Accounts (5232.0).

## Financial enterprises

Financial enterprises are institutions which mainly engage in financial intermediation and provision of financial services, for example by taking deposits, borrowing and lending, providing superannuation, supplying all types of insurance cover, leasing, and investing in financial assets.

For national accounting purposes, financial enterprises are grouped into Depository corporations, Life offices, Pension funds, Other insurance corporations, Central borrowing authorities and Financial intermediaries. Depository corporations are those which are included in the Reserve Bank of Australia's broad money measure (see *Money supply measures* later in the chapter). The Reserve Bank itself is a

depository corporation; authorised depository institutions are those supervised by APRA and include banks, building societies and credit unions; non-supervised depository corporations registered under the Financial Corporations Act include merchant banks, pastoral finance companies, finance companies and general financiers; and cash management trusts are also included in depository corporations. Life offices and Pension funds cover the statutory funds of life offices, separately constituted pension funds, approved deposit funds, friendly societies and long-service-leave boards. Other financial institutions cover health, export and general insurance companies, common funds, mortgage, fixed interest and equity unit trusts, issuers of asset-backed securities, economic development corporations, cooperative housing societies and credit union leagues.

Table 26.2 shows the relative size of these groups of financial enterprises in terms of their financial assets. This table has been compiled on a consolidated basis, that is, financial claims between institutions in the same grouping have been eliminated. The total is also consolidated, that is, financial claims between the groupings have been eliminated. For this reason, and because there are a number of less significant adjustments made for national accounting purposes, the statistics in the summary table will differ from those presented later in this chapter and published elsewhere.

## Banks

Before 1959, central banking business was the responsibility of the Commonwealth Bank. The *Reserve Bank Act 1959* established the Reserve Bank of Australia as the central bank. From 1959 the Reserve Bank was responsible for the supervision of commercial banks; from 1 July 1998 APRA assumed responsibility for bank supervision. From that date the Reserve Bank retains responsibility for monetary policy and the maintenance of financial stability, including stability of the payments system.

Banks are the largest deposit-taking institutions in Australia. At the end of June 1998 there were 55 banks operating in Australia. All are authorised to operate by the *Banking Act 1959*. Four major banks: the Australia and New Zealand Banking Group, Commonwealth Bank of Australia, National Australia Bank and Westpac Banking Corporation, account for over half the total assets of all banks. These four banks provide widespread banking services and an extensive retail branch network throughout Australia. The remaining banks provide similar banking services through limited branch networks often located in particular regions. As at 30 June 1998, banks operated 5,615 branches and 6,367 agencies. Of the total branches, 3,190 were located in metropolitan areas. Banking facilities were also available at 3,232 metropolitan agencies throughout Australia. Banking services were also provided at 2,720 giroPOST locations and 8,814 Automatic Teller Machines throughout Australia.

The liabilities and financial assets of the Reserve Bank are set out in table 26.3. The liabilities and financial assets of the banks operating in Australia are shown in table 26.4.

### 26.2 FINANCIAL INSTITUTIONS, Financial Assets

At 30 June	Depository Corporations								Consolidated total
	Reserve Bank	Banks	Other	Life insurance corporations	Pension funds	Other insurance corporations	Central borrowing authorities	Financial intermediaries n.e.c.	
	\$b	\$b	\$b	\$b	\$b	\$b	\$b	\$b	\$b
1995	36.6	434.0	134.4	127.4	177.1	37.1	115.7	77.5	<b>851.0</b>
1996	35.6	478.6	146.1	130.6	207.2	47.8	100.7	93.7	<b>928.1</b>
1997	49.1	534.6	155.7	149.9	257.0	51.6	92.7	119.6	<b>1 043.8</b>
1998	45.1	586.4	171.7	158.3	300.5	58.6	96.7	161.2	<b>1 148.2</b>
1999	44.6	654.7	176.6	168.0	343.4	59.0	96.5	150.5	<b>1 229.1</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.3 RESERVE BANK OF AUSTRALIA, Financial Assets and Liabilities**

	Amounts outstanding at 30 June		
	1997	1998	1999
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Monetary gold and SDRs	1 794	1 261	1 101
Currency and deposits	6 242	12 044	6 037
One name paper	5 219	4 074	2 769
Bonds	35 648	27 549	34 507
Other accounts receivable	233	220	205
<b>Total financial assets(a)</b>	<b>49 136</b>	<b>45 148</b>	<b>44 619</b>
<b>LIABILITIES</b>			
Currency and deposits	38 848	32 781	34 968
Unlisted shares and other equity	9 735	12 554	10 913
Other accounts payable	1 429	1 503	3 459
<b>Total liabilities</b>	<b>50 010</b>	<b>46 838</b>	<b>49 340</b>

(a) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.). (b) Estimates based on net asset values. Assets do not equal liabilities as all other figures are reported at market values.

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.4 BANKS(a), Financial Assets and Liabilities**

	Amounts outstanding at 30 June		
	1997	1998	1999
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	29 710	30 354	31 254
Acceptance of bills of exchange	60 833	65 613	69 736
One name paper	9 660	7 476	10 195
Bonds	21 982	15 821	21 007
Derivatives	11 848	15 136	15 584
Loans and placements	349 243	399 348	444 569
Equities	26 732	28 000	33 351
Prepayments of premiums and reserves	1 174	1 306	1 410
Other accounts receivable	23 434	23 358	27 635
<b>Total financial assets(b)</b>	<b>534 616</b>	<b>586 412</b>	<b>654 741</b>
<b>LIABILITIES</b>			
Currency and deposits	287 549	319 553	334 412
Acceptance of bills of exchange	47 666	51 508	53 860
One name paper	57 929	69 327	88 986
Bonds	48 796	56 723	59 416
Derivatives	11 996	13 764	15 567
Loans and placements	10 956	10 969	19 508
Equity	96 383	96 432	106 099
Other accounts payable	37 993	31 827	36 308
<b>Total liabilities</b>	<b>584 565</b>	<b>650 466</b>	<b>714 156</b>

(a) Does not include the Reserve Bank of Australia. (b) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.).

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.5 OTHER DEPOSITORY CORPORATIONS, Total Assets**

	Amounts outstanding at 30 June		
	1996	1997	1998
	\$m	\$m	\$m
Permanent building societies	13 095	10 582	11 801
Credit cooperatives	15 418	16 800	18 116
Authorised money market dealers	4 085	n.a.	n.a.
Money market corporations	59 852	67 069	67 636
Pastoral finance companies	2 880	3 290	3 545
Finance companies	34 767	36 169	43 729
General financiers	11 404	14 014	16 704
Cash management trusts	7 978	12 032	18 676
<b>Total</b>	<b>149 479</b>	<b>159 956</b>	<b>180 207</b>

Source: Australian Financial Institutions Commission; Reserve Bank of Australia; Managed Funds, Australia (5655.0).

### Other depository corporations

In addition to banks, financial institutions such as building societies, credit unions and merchant banks play an important part in the Australian financial system. In the Australian Financial Accounts, non-bank deposit-taking institutions are defined as those with liabilities included in the Reserve Bank's definition of *broad money*. Financial enterprises classified to this subsector are cash management trusts and corporations registered in categories A to G of the *Financial Corporations Act 1974*.

Regulation of some of these institutions was provided for by both Commonwealth and State legislation. Part of the regulatory framework is provided by the *Financial Corporations Act 1974* under which non-bank financial institutions with assets in excess of \$1m are registered. Under the Act, information and statistics on their operations are provided to the Reserve Bank.

In each State and Territory there was legislation designed to regulate the activities and monitor the solvency position of particular types of financial institutions which operated as financial cooperatives. In July 1992, the Australian Financial Institutions Commission was established to promote Australia-wide standards for the prudential supervision of building societies and credit unions. Supervision of building societies and credit unions was transferred to APRA on 1 July 1999. From that date APRA has referred to banks, building societies and credit unions as authorised depository institutions.

Table 26.5 shows the total assets of each category of non-bank deposit-taking institution.

There are eight categories of other depository corporations. Permanent building societies are usually organised as financial cooperatives. They are authorised to accept money on deposit. They provide finance principally in the form of housing loans to their members. They are registered with the Reserve Bank under the *Financial Corporations Act 1974* as category A financial corporations.

Credit cooperatives—also known as credit unions—are similar to building societies. As their name implies, they are organised as financial cooperatives which borrow from and provide finance to their members. Credit cooperatives mainly lend for purposes other than housing. They are registered under the *Financial Corporations Act 1974* as category B financial corporations.

Authorised dealers (category C financial corporations) were authorised by the Reserve Bank to buy and sell debt securities in the Official Short-term Money Market. The Bank supported them by offering them an end-of-day repurchase facility. In return, the authorised dealers had to be willing traders in approved securities and adhere to other requirements of the Reserve Bank. These arrangements came to an end on 9 August 1996 when the Reserve Bank withdrew all facilities from authorised dealers.

Money market corporations are similar to wholesale banks, and for this reason they are often referred to as merchant or investment banks. They have substantial short-term borrowings which they use to fund business loans and investments in debt securities. They are registered as category D financial corporations.

Pastoral finance companies incur liabilities to lend to rural producers. They are category E financial corporations. Finance companies (category F financial corporations) borrow mainly on financial markets, for example by issuing debentures. They lend these funds to both businesses and persons. Their lending to businesses is sometimes called commercial lending and covers, for example, financial leasing of vehicle fleets. Their lending to persons is often in the form of instalment credit to finance retail sales by others. In contrast with finance companies, general financiers (category G financial corporations) are funded by their parent or another member of their company group. Typically they lend to corporate customers which buy products produced by member companies of their group. For example, a general financier within a motor vehicle manufacturing group will lend to the group's dealers to finance their inventory of vehicles.

Cash management trusts are investment funds which are open to the public. They invest the pooled monies of their unit holders mainly in money-market securities such as bills of exchange. As with other public unit trusts their operations are governed by a trust deed and their units are redeemable by the trustee on demand or within a short time. They are not subject to supervision by APRA or registered under the *Financial Corporations Act 1974*.

## Life offices and pension funds

### Life insurance corporations

Life insurance corporations offer termination insurance and investment policies. Termination insurance includes the payment of a sum of money on the death of the insured or on the insured receiving a permanent disability. Investment products include annuities and superannuation plans. The life insurance industry in Australia consists of 44 direct insurers and 6 reinsurers. As with the banking industry, the life insurance industry is dominated by a few very large companies holding a majority of the industry's assets.

Life insurance companies are supervised by the Australian Prudential Regulation Authority (previously the Insurance and Superannuation Commission) under the *Life Insurance Act 1995*. The Act came into effect on 1 July 1995, replacing the *Life Insurance Act 1945*. The main differences between the two Acts are that the 1995 Act

promotes increased consumer protection measures and places greater requirements on office bearers. The Australian Prudential Regulation Authority has increased monitoring and investigative powers. Life insurance companies are also required to maintain minimum levels of solvency and capital adequacy.

The operations of life insurance corporations can be split effectively into two parts. The statutory funds contain policy owner monies that are invested according to policy owner expectations. Total assets in statutory funds of Australian life insurers are shown in table 26.6. The shareholders' funds must be held separately and distinct from the statutory funds and, as its name suggests, money in this account can be invested to the benefit of the shareholders.

### Pension funds

Pension funds have been established to provide retirement benefits for their members. Members make contributions during their employment and receive the benefits of this form of saving in retirement. In order to receive concessional taxation treatment, a pension fund must elect to be regulated under the *Superannuation Industry (Supervision) Act 1993*. These funds are then supervised by APRA. Public sector funds, being funds sponsored by a government employer or government controlled business enterprise, are exempt from direct APRA supervision.

A regulated fund must have an approved trustee or provide old age pensions under its governing rules. An election to be regulated under the Act is irrevocable. As at June 1998 there were approximately 175,000 superannuation funds regulated under the Act.

Most pension funds are excluded funds that have less than five members (also known as the self-managed or 'do it yourself' funds) with the balance either open to the general public or sponsored by an employer. Pension funds are employer-sponsored if an employer contributes to the fund on behalf of an employee. Employer-sponsored funds generally have closed memberships restricted to the employees of particular companies. Industry funds, such as those operated by trade unions, are also considered to be employer-sponsored funds.

It is expected that, from 1 July 2000, the Australian Taxation Office will assume responsibility for administering self-managed superannuation funds.

**26.6 LIFE INSURANCE CORPORATIONS, Financial Assets and Liabilities**

	June 1997	June 1998	June 1999
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	8 670	11 487	11 360
Bills of exchange	6 540	6 467	5 360
One name paper	14 600	11 700	16 129
Bonds	39 872	41 600	42 235
Loans and placements	7 428	11 137	10 269
Equities	69 553	71 087	76 625
Other accounts receivable	3 187	4 773	6 049
<b>Total financial assets</b>	<b>149 850</b>	<b>158 251</b>	<b>168 027</b>
<b>LIABILITIES</b>			
Loans and placements	420	2 072	3 764
Listed and unlisted equity	9 127	34 695	34 708
Net equity in reserves	85 321	70 742	63 055
Net equity of pension funds	65 023	76 040	90 098
Other accounts payable	7 455	4 833	5 483
<b>Total liabilities</b>	<b>167 351</b>	<b>188 387</b>	<b>197 113</b>

Source: *Managed Funds, Australia* (5655.0).

**26.7 PENSION FUNDS, Financial Assets**

	June 1997	June 1998	June 1999
	\$m	\$m	\$m
Currency and deposits	17 359	22 919	25 380
Bills of exchange	4 990	5 225	6 471
One name paper	7 076	7 879	10 969
Bonds	22 428	29 728	30 360
Loans and placements	10 346	12 029	12 987
Equities	121 679	138 158	156 747
Unfunded superannuation claims	3 514	4 818	6 095
Net equity of pension funds in life office reserves	65 023	76 040	90 098
Other accounts receivable	4 619	3 753	4 219
<b>Total</b>	<b>257 034</b>	<b>300 549</b>	<b>343 398</b>

Source: *Joint ABS/ISC Survey*.

Separate statistics on approved deposit funds (ADFs) were published up until June 1995. ADFs were established in 1984 to encourage long-term savings for retirement by allowing employees to roll over all or part of their eligible termination payments within the pension system instead of taking their benefit in cash. With the introduction of the *Superannuation Industry (Supervision) Act 1993*, eligible termination payments can now be rolled over into complying pension funds, complying ADFs or eligible annuities. The introduction of Retirement Savings Accounts in 1997 also now allows these payments to be deposited in capital guaranteed pension savings accounts operated by financial institutions

without trustees. The diminished role of ADFs within the pension system as a result of these developments is the major reason for ceasing to publish separate statistics on their operations.

The financial assets of pension funds are shown in table 26.7. They include unfunded pension claims by pension funds on the Commonwealth Government where these have been formally recognised in accounting systems. The assets in the table do not include any provision for the pension liabilities of Australian governments to public sector employees in respect of unfunded retirement benefits. The ABS estimate for these outstanding liabilities at 30 June 1999 was \$131.8b.

## Other insurance corporations

This sector includes all corporations that provide insurance other than life insurance. Included are general, fire, accident, employer liability, household, health and consumer credit insurers. Table 26.8 sets out the total financial assets and liabilities of the Other insurance corporations sector.

Private health insurers are regulated by the Private Health Insurance Administration Council under the *National Health Act 1959*. At 31 January 1998 there were 49 private health insurers, including health benefit funds of friendly societies. Other private insurers are supervised by APRA under the *Insurance Act 1973*. At 31 December 1998 there were 172 insurers supervised by APRA. In addition, there were 12 public sector insurers at 31 December 1998.

## Central borrowing authorities

Central borrowing authorities (CBAs) are institutions established by each State and Territory Government primarily to provide finance for public corporations and quasi-corporations and other units owned or controlled by those governments, and to arrange investment of the units' surplus funds. The CBAs borrow funds, mainly by issuing securities, to on-lend to their public sector clientele. However, they also engage in other financial intermediation activity for investment purposes, and may engage in the financial management activities of the parent government.

Table 26.9 shows the financial assets and the liabilities of the CBAs for the most recent three years.

**26.8 OTHER INSURANCE CORPORATIONS, Financial Assets and Liabilities**

	June 1997	June 1998	June 1999
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	4 031	4 623	5 689
Bills of exchange	1 468	1 785	2 003
One name paper	2 208	2 325	1 340
Bonds	15 147	15 580	14 257
Loans and placements	5 404	6 585	7 819
Equities	16 846	20 093	20 535
Other accounts receivable	6 477	7 627	7 366
<b>Total financial assets</b>	<b>51 581</b>	<b>58 618</b>	<b>59 009</b>
<b>LIABILITIES</b>			
Bonds on issue	614	853	676
Loans and placements	526	1 171	1 656
Listed shares and other equity	7 542	7 032	5 672
Unlisted shares and other equity	6 432	8 215	10 311
Prepayment of premiums	39 140	43 572	47 043
Other accounts receivable	7 997	9 646	9 655
<b>Total liabilities</b>	<b>62 252</b>	<b>70 490</b>	<b>75 013</b>

Source: ABS, *Financial Accounts* (5232).

**26.9 CENTRAL BORROWING AUTHORITIES, Financial Assets and Liabilities**

	Amounts outstanding at 30 June		
	1997	1998	1999
	\$m	\$m	\$m
<b>FINANCIAL ASSETS</b>			
Currency and deposits	1 919	2 157	2 670
Holdings of bills of exchange	4 594	5 248	7 861
One name paper	2 796	7 005	6 433
Bonds	1 863	1 778	2 334
Derivatives	1 430	1 641	1 856
Loans and placements	78 660	77 786	74 282
Other accounts receivable	1 443	1 055	1 025
<b>Total financial assets(a)</b>	<b>92 705</b>	<b>96 676</b>	<b>96 466</b>
<b>LIABILITIES</b>			
Drawings of bills of exchange	138	134	105
One name paper	3 985	5 781	7 880
Bonds	75 444	76 764	74 566
Derivatives	1 413	1 804	1 857
Loans and placements	5 768	6 624	7 899
Equity	186	211	209
Other accounts payable	2 785	3 388	1 827
<b>Total liabilities</b>	<b>89 720</b>	<b>94 706</b>	<b>94 343</b>

(a) Excludes non-financial assets (e.g. fixed assets, property, inventories, etc.).

Source: Australian National Accounts: Financial Accounts (5232.0).

### Financial intermediaries not elsewhere classified

Financial intermediaries n.e.c. comprise all institutions that meet the definition of a financial enterprise and have not been included elsewhere. They include:

- economic development corporations owned by governments;
- cash, mortgage, equity and fixed interest common funds;
- mortgage, fixed interest, balanced and equity public unit trusts;
- wholesale trusts;
- securitisers;
- investment companies;
- cooperative housing societies;
- corporations registered in category J of the *Financial Corporations Act 1974*; and
- housing finance schemes established by State Government to assist first home buyers.

In addition to enterprises which engage directly in intermediation, the subsector also includes enterprises which undertake activity closely associated with intermediation such as:

- fund managers;
- insurance brokers; and
- arrangers of hedging instruments such as swaps, options and futures.

Table 26.10 shows the financial assets of selected groups of financial intermediaries n.e.c.

Economic development corporations are owned by governments. As their name implies, these bodies are expected to finance infrastructure developments mainly in their home State or Territory.

Common funds are set up by trustee companies and are governed by State Trustee Acts. They allow the trustee companies to combine depositors' funds and other funds held in trust in an investment pool. They are categorised according to the main types of assets in the pool, for example, cash funds or equity funds.



## 26.10 FINANCIAL INTERMEDIARIES N.E.C., Financial Assets

	Amounts outstanding at 30 June		
	1997	1998	1999
	\$m	\$m	\$m
Public unit trusts(a)	42 040	53 675	66 418
Equity unit trusts	28 496	34 540	41 936
Other unit trusts	13 544	19 135	24 482
Common funds	6 118	6 890	7 211
Securitisers	20 446	33 185	44 977
Cooperative housing societies	1 359	n.y.a.	n.y.a.
Other(b)	49 637	n.y.a.	n.y.a.
<b>Total</b>	<b>119 600</b>	<b>161 200</b>	<b>150 300</b>

(a) Excludes property and trading trusts. (b) Includes investment companies, Category J financial institutions, economic development corporations, fund managers, insurance brokers, hedging instrument arrangers, wholesale trusts, and State government housing schemes.

Source: Australian National Accounts: Financial Accounts (5232.0); Managed Funds, Australia (5655.0); Private Health Insurance Administration Council Annual Report, Annual Statistics on Financial Institutions.

Public unit trusts are investment funds open to the Australian public. Their operations are governed by a trust deed which is administered by a management company. Under the *Managed Investments Act 1997*, the management company has become the single responsible entity for both investment strategy and custodial arrangements; the latter previously had been the responsibility of a trustee. These trusts allow their unitholders to dispose of their units relatively quickly. They may sell them back to the manager if the trust is unlisted, or sell them on the Australian Stock Exchange if the trust is listed. Public unit trusts are categorised according to the main types of assets in the pool; for example, property or equity. Only those which invest primarily in financial assets—mortgages, fixed interest, futures or equity securities—are included here.

Wholesale trusts are investment funds that are only open to institutional investors—life insurance corporations, superannuation funds, retail trusts, corporate clients, high net worth individuals—due to high entry levels (e.g. \$500,000 or above). They may issue a prospectus, but more commonly only an information memorandum. Only those which invest in financial assets are included here.

Securitisers issue debt securities which are backed by specific assets. The most common assets bought by securitisation trusts/companies are residential mortgages. These mortgages are originated by financial institutions such as banks and building societies, or by specialist mortgage managers. Other assets can also be used to back these securities, such as credit card receivables

and leases. Securitisers generally pool the assets and use the income on them to pay interest to the holders of the asset-backed securities.

Investment companies are similar to equity trusts in that they invest in the shares of other companies. However, investors in investment companies hold share assets, not unit assets.

Cooperative housing societies are similar to permanent building societies. In the past they were wound up after a set period, but now they too are continuing bodies. They raise money through loans from members (rather than deposits) and provide finance to members in the form of housing loans. Over recent years many cooperative housing societies have originated mortgages on behalf of securitisers.

Corporations registered in Category J of the *Financial Corporations Act 1974* are classified to this sector because their liabilities are not included in the Reserve Bank's definition of *broad money*.

Fund managers, insurance brokers and arrangers of hedging instruments are classified as financial auxiliaries as they engage primarily in activities closely related to financial intermediation, but they themselves do not perform an intermediation role. Auxiliaries primarily act as agents for their clients (usually other financial entities) on a fee for service basis, and as such the financial asset remains on the balance sheet of the client, not the auxiliary. However a small portion of the activities of auxiliaries is brought to account on their own balance sheet, and these amounts are included in the table above.

## Financial markets

Financial markets are used by participants to either raise funds (for example, by issuing securities) or invest savings (by buying securities and other financial assets). The major markets in the Australian financial system include the share market, bond market and money market. Descriptions and tables indicating prices and activity in various financial markets are provided below.

A significant influence in financial markets is the participation of institutional investors which control large pools of investment funds. These pools are accumulated by collective investment institutions and are often managed on a fee-for-service basis by investment managers. A summary of the activities of these institutions is also provided.

## Credit market

Credit may be defined broadly as funds provided to those seeking to borrow. However, analytically useful measures of credit usually exclude borrowings by financial enterprises because their main role is as an intermediary, i.e. they borrow in order to lend. Also, lending and borrowing between enterprises which have a special relationship, such as between companies in the same group or between government agencies, are often excluded from credit measures because transactions between these bodies frequently are of a non-market nature. Similarly, some types of financial instrument, such as trade debts, are not considered to be part of an organised market. All of these types of transactions are omitted from table 26.11, which presents a summary of the demand for credit in Australia by the non-financial sectors. It includes raisings by the issue of both debt and equity securities.

Table 26.12 shows indicative interest rates for bank borrowing and lending. Another view of activity in the credit market is provided in the section *Lending by financial institutions*.

**26.11 DEMAND FOR CREDIT**

	Net transactions during year		
	1995–96	1996–97	1997–98
	\$m	\$m	\$m
Funds (including equity) raised on conventional credit markets by			
Private non-financial corporations	51 336	45 188	50 190
National public non-financial corporations	–592	1 870	11 022
State and local public non-financial corporations	–3 696	–1 779	–976
National general government	12 418	–475	–1 843
State and local general government	–7 527	–3 767	–98
Households	30 614	28 958	41 576
<b>Total</b>	<b>82 553</b>	<b>69 995</b>	<b>83 283</b>

Positive numbers indicate an increase in borrowings. Negative numbers indicate debt repayment.

Source: Australian National Accounts: Financial Accounts (5232.0).

**26.12 BANK RETAIL DEPOSIT AND LENDING RATES**

	June 1997	June 1998	June 1999
	% p.a.	% p.a.	% p.a.
Bank deposit rates			
Six month fixed deposit	4.65	4.15	3.70
Cash management accounts(a)	3.70	3.20	2.90
Bank lending rates			
Housing loans—variable	7.20	6.70	6.50
Small business loans—variable	9.50	7.70	7.45
Credit cards	16.00	15.30	15.30

(a) Accounts from \$20,000 to less than \$100,000.

Source: Reserve Bank of Australia Bulletin.

## Stock market

The Australian stock market provides a mechanism for trading equities (shares), units in trusts, options, and some fixed-interest securities, through a network of computers, with buyers and sellers located anywhere in the country.

It is operated nationally by Australian Stock Exchange Limited (ASX), which is responsible for the day-to-day running and surveillance of stock market trading. Trading is electronic, conducted using the Stock Exchange Automated Trading System.

ASX classifies listed companies according to their major activity and produces indexes based on these classifications. Table 26.13 summarises the performance of the major indexes over the last three financial years.

### 26.13 AUSTRALIAN STOCK MARKET INDEXES(a)

	1996-97	1997-98	1998-99
All ordinaries			
Index(b)	2 725.9	2 668.4	2 976.9
High	2 728.5	2 715.7	3 009.5
Low	2 594.0	2 511.2	2 891.2
All industrials			
Index(b)	4 301.8	4 689.0	5 203.6
High	4 307.5	4 726.7	5 279.7
Low	4 051.2	4 365.9	5 107.6
All resources			
Index(b)	1 508.8	1 037.4	1 211.4
High	1 536.5	1 099.3	1 237.1
Low	1 473.4	990.9	1 087.0

(a) Base 31 December 1979 = 500. (b) Share prices on joint trading floors; average of daily figures for June.

Source: Australian Stock Exchange, *Monthly Index Analysis*.

Table 26.14 shows the market value of Australian shares and units in trusts on issue—both listed and unlisted. It shows the amount on issue by sector of issuer and sector of holder of equities and units.

### 26.14 THE EQUITY MARKET(a)

	Amounts on issue at 30 June		
	June 1997	June 1998	June 1999
	\$m	\$m	\$m
<b>Total equities and units in trusts</b>	<b>876 799</b>	<b>1 028 463</b>	<b>1 141 344</b>
ISSUED BY			
National public non-financial corporations(b)	25 738	81 537	121 341
State and local non-financial corporations(b)	103 643	104 112	106 277
Private corporate trading enterprises(c)	432 798	430 183	495 460
Central Bank(b)	9 735	12 554	10 913
Banks(c)	92 725	103 635	112 807
Other depository corporations	15 788	15 743	16 038
Life insurance corporations(c)	9 127	35 887	35 666
Central borrowing authorities(b)	186	211	209
Other insurance corporations	14 192	15 417	16 166
Financial intermediaries	47 744	82 575	71 741
Rest of world	125 123	146 609	154 726
HELD BY			
National public non-financial corporations	833	758	815
State and local public non-financial corporations	49	67	69
Private non-financial corporations	96 577	99 624	101 095
Banks	33 074	35 203	40 059
Other depository corporations	5 468	5 639	5 965
Life insurance corporations	69 553	72 279	77 583
Other insurance corporations	17 064	20 263	20 718
Pension funds	121 679	138 158	156 747
Financial intermediaries	50 717	82 283	73 373
National general government	35 780	75 388	94 350
State and local general government	107 523	108 014	108 033
Households	123 068	150 315	182 182
Rest of world	215 414	240 466	280 350

(a) Includes units in trusts. (b) Net asset values. (c) These estimated market values are considered to be of poor quality. They should be used cautiously.

Source: Australian National Accounts: *Financial Accounts* (5232.0).

**26.15 SHORT-TERM MONEY MARKET RATES**

	June 1997	June 1998	June 1999
	% p.a.	% p.a.	% p.a.
11am call	5.57	5.07	4.80
Bank-accepted bills— 90 days	5.35	5.32	4.93

Source: Reserve Bank of Australia Bulletin.

**Money market**

Liquidity management by Australian corporations, financial institutions and governments is conducted through an informally arranged market for deposits, loans and placements, and by issuance, purchase and sale of short-term debt securities. Rates in the market at end June of the last three financial years are shown in table 26.15.

Money market securities have an original term to maturity of less than one year, often 90 or 180 days. They are issued by borrowers at a discount to face value, and carry no income payment other

than the repayment of face value at maturity. To enhance liquidity, money market securities conform to standardised attributes concerning risk and discount rates. Because of the standardisation, the securities of different issuers are often combined in the one parcel of securities for trading purposes. There are two types of securities: bills of exchange and promissory notes (or one name paper), both of which are covered by the *Bills of Exchange Act 1909*. The risk of default of a bill of exchange is reduced by an acceptor or endorser adding their name to the security for a fee. Most bills of exchange traded in the market are bank-accepted bills. Promissory notes are issued by institutions whose credit worthiness is equal to or better than that of banks: the Commonwealth Government issues Treasury Notes, State Governments and large corporations issue commercial paper and banks issue negotiable certificates of deposit. Table 26.16 shows the amount on issue, by sector of issuer and sector of holder, of the various types of money market securities.

**26.16 SHORT-TERM DEBT SECURITIES**

	Amounts outstanding at 30 June		
	1997	1998	1999
	\$m	\$m	\$m
<b>ISSUED BY</b>			
Private non-financial corporations	66 164	70 695	72 786
National public non-financial corporations	3 274	3 975	3 855
State and local public non-financial corporations	100	380	298
Banks	122 157	138 398	166 968
Other depository corporations	28 710	31 881	24 796
Central borrowing authorities	4 372	6 270	8 513
Financial intermediaries n.e.c.	8 793	12 580	21 933
National general government	13 418	10 305	7 702
Households	2 293	2 469	2 904
Rest of World	3 355	1 677	1 971
<b>Total</b>	<b>252 636</b>	<b>278 630</b>	<b>311 726</b>
<b>HELD BY</b>			
Private non-financial corporations	11 308	13 674	24 430
National public non-financial corporations	1 404	656	762
State and local public non-financial corporations	549	422	197
Central bank	5 219	4 074	2 769
Banks	87 055	90 652	104 053
Other depository corporations	15 754	22 360	21 917
Life insurance corporations	21 140	18 167	21 489
Pension funds	12 066	13 104	17 440
Other insurance corporations	3 676	4 110	3 343
Central borrowing authorities	7 639	12 608	14 822
Financial intermediaries n.e.c.	30 834	33 122	27 886
Households	3 934	4 927	7 494
Rest of world	52 059	60 755	65 124
<b>Total</b>	<b>252 636</b>	<b>278 630</b>	<b>311 726</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

## Bond market

Bonds are issued with original terms to maturity of one or more years. Usually the investors are paid a set periodic interest, called a coupon, for the life of the bond and receive their initial investment back at maturity. Some bonds have variable interest rates, some have principal repayments indexed, and there are small amounts of zero-coupon or deep discount securities which are issued at a discount to face value. Governments, trading enterprises and financial institutions issue bonds to finance long-term requirements. For these entities, the bond market generally provides a cheaper source of funds than borrowing from banks and other financial institutions. Table 26.17 shows the market yields at end June of the last three financial years for a range of bonds.

**26.17 BOND MARKET, Market Yields**

	June 1997	June 1998	June 1999
	% p.a.	% p.a.	% p.a.
Treasury bonds			
3 years	5.93	5.25	5.63
5 years	6.44	5.38	5.90
10 years	7.05	5.58	6.27
NSW T-corp bonds			
3 years	5.94	5.40	5.89
5 years	6.51	5.58	6.24
10 years	7.23	5.86	6.61
Finance company debentures			
2 years	5.50	5.30	5.10
3 years	5.90	5.40	5.40

Source: Reserve Bank of Australia Bulletin.

**26.18 BONDS, Amounts Outstanding**

	Amounts outstanding at 30 June		
	1997	1998	1999
	\$m	\$m	\$m
ISSUED BY			
Private non-financial corporations	27 564	32 661	32 278
National public non-financial corporations	5 605	6 860	6 352
State and local public non-financial corporations	177	92	0
Banks	60 789	70 487	74 983
Other depository corporations	33 912	36 488	33 300
Other insurance corporations	614	853	676
Central borrowing authorities	83 331	83 559	80 637
Financial intermediaries n.e.c.	22 264	29 145	29 787
National general government	108 655	96 976	86 445
Rest of world	36 086	37 994	46 859
<b>Total</b>	<b>378 997</b>	<b>395 115</b>	<b>391 317</b>
HELD BY			
Private non-financial corporations	5 467	4 836	4 946
National public non-financial corporations	377	426	50
State and local public non-financial corporations	708	690	367
Central bank	35 648	27 549	34 507
Banks	33 830	30 957	36 591
Other depository corporations	16 244	14 456	13 074
Life insurance corporations	39 872	41 600	42 235
Pension funds	22 428	29 728	30 360
Other insurance corporations	15 147	15 580	14 257
Central borrowing authorities	9 766	8 410	8 404
Financial intermediaries n.e.c.	14 848	20 627	16 007
Households	12 630	14 165	12 967
Rest of world	172 032	186 091	177 552
<b>Total</b>	<b>378 997</b>	<b>395 115</b>	<b>391 317</b>

Source: Australian National Accounts: Financial Accounts (5232.0).

The main issuers of bonds are the Commonwealth Government and State Governments through their central borrowing authorities. Issues by Commonwealth, State and local public trading enterprises may be guaranteed by their respective governments. This provides the bond issue with a higher credit rating, meaning that the market will purchase the bonds at a lower yield. Corporate bonds are issued only by very large private trading and financial enterprises. The amounts outstanding on bonds at end June of the last three financial years are shown in table 26.18.

### Foreign exchange market

The foreign exchange market is the means whereby currencies of different countries can be bought and sold. In October 1983, the Commonwealth Government decided to float the Australian dollar, allowing its value to be determined by market forces with few exchange controls and little Reserve Bank intervention. Prior to 1983, the Australian dollar was pegged to a basket of currencies which were weighted according to their trading significance to Australia. For further information regarding exchange rates, see the *Balance of Payments* section in *Chapter 30, International accounts and trade*. Table 26.19 shows the value of the Australian dollar against major currencies at end June of the last three financial years.

**26.19 VALUE OF AUSTRALIAN DOLLAR, Against Major Currencies**

	At 30 June		
	1997	1998	1999
United States dollar	0.7513	0.6020	0.6547
United Kingdom pound	0.4585	0.3643	0.4094
German deutschmark	1.2951	1.0781	1.2336
Japanese yen	85.74	84.45	78.97
Euro	n.a.	n.a.	0.63

Note: Rate given is the midpoint between the buying and selling rates.

Source: *Average of Daily Exchange Rates* (5654.0).

Currencies are traded for many reasons: because of exporting or importing requirements, investing or borrowing overseas, arbitraging (i.e. taking advantage of short-term discrepancies in rates) or speculating on possible exchange rate movements with a view to making a profit. Table 26.20 shows daily averages of foreign exchange turnover against all currencies.

**26.20 FOREIGN EXCHANGE TURNOVER AGAINST ALL CURRENCIES, Daily Averages(a)**

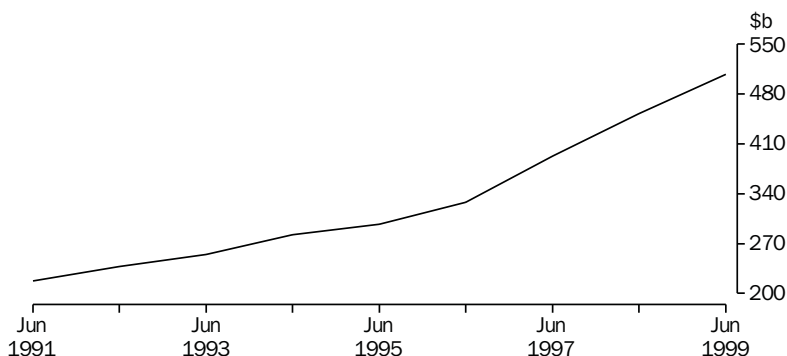
	1996-97	1997-98	1998-99
	\$m	\$m	\$m
Transactions by foreign exchange dealers(b)			
Outright spot(c)	23 641	28 659	32 770
Outright forward(d)	2 495	3 689	4 540
Swaps	35 390	36 452	37 902
Options	1 442	2 112	2 485
<b>Total</b>	<b>62 968</b>	<b>70 912</b>	<b>77 697</b>

(a) Figures given are the average daily turnover for the financial year. (b) Australian banks and non-bank financial intermediaries authorised to deal in foreign exchange. (c) An outright spot transaction is one for receipt or delivery within two business days. (d) An outright forward transaction is one for receipt or delivery in more than two business days.

Source: Reserve Bank of Australia Bulletin, based on information supplied by foreign exchange dealers.

### Managed funds

The term *managed funds* is used in the financial community to embrace two broad types of institutions. The first are collective investment institutions (such as life insurance companies) which buy assets on their own account. The second are investment or fund managers, which act as investment agents for the collective investment institutions as well as others with substantial funds to invest. Investment managers have relatively small balance sheets because most of the assets they acquire are purchased on behalf of clients. The significant growth in managed funds (see graph 26.21) has been a major development in the financial sector over the last decade.

**26.21 MANAGED FUNDS, Consolidated Assets**

Source: *Managed Funds, Australia* (5655.0).

**Collective investment institutions**

As the name implies, collective investment institutions pool the funds of many small investors and use them to buy a particular type or mix of assets. The asset profile can be structured to satisfy individual investor requirements regarding, for example, the degree of risk, the mix of capital growth and income, and the degree of asset diversification. Collective investment institutions comprise the following:

- life insurance corporations;
- pension and approved deposit funds;
- public unit trusts;
- friendly societies;
- common funds; and
- cash management trusts.

Funds of a speculative nature that do not offer redemption facilities—for example, agricultural and film trusts—are excluded.

To derive the total assets of collective investment institutions in Australia on a consolidated basis, it is necessary to eliminate the cross investment between the various types of institution. For example, investments by superannuation funds in public unit trusts are excluded from the assets of superannuation funds in a consolidated presentation.

Although statistics for each of these institutions were presented earlier in this chapter, the accompanying tables summarise their consolidated position (i.e. after the cross investment between the institutions has been eliminated). Table 26.22 shows their assets by type of institution and table 26.23 shows assets by type of investment.

**26.22 ASSETS OF MANAGED FUNDS,  
By Type of Collective Investment Institution—  
30 June 1999**

Type of fund	Cross		Consolidated
	Total	invested	
	\$m	\$m	\$m
Life insurance corporations(a)	173 476	13 359	160 117
Pension funds	268 251	46 848	221 403
Public unit trusts	103 786	12 391	91 395
Friendly societies	6 500	85	6 415
Common funds	7 721	131	7 590
Cash management trusts	21 436	—	21 436
<b>Total</b>	<b>581 170</b>	<b>72 814</b>	<b>508 356</b>

(a) Investments by pension funds which are held and administered by life insurance offices are included under life insurance offices.

Source: *Managed Funds, Australia* (5655.0).

**26.23 MANAGED FUNDS, Consolidated Assets**

	30 June 1997	30 June 1998	30 June 1999
Type of investment	\$m	\$m	\$m
Deposits, loans and placements	47 789	58 027	62 910
Short-term debt securities	47 004	53 998	64 015
Long-term debt securities	59 246	66 039	74 326
Equities and units in trusts	117 994	130 548	145 529
Land and buildings	41 262	48 156	56 092
Overseas assets	62 446	78 632	85 824
Other assets	17 184	17 047	19 659
<b>Total</b>	<b>392 926</b>	<b>452 448</b>	<b>508 356</b>

Source: *Managed Funds, Australia* (5655.0).

**Investment managers**

A further development within the managed funds industry is the emergence of specialist investment managers. They are employed on a fee-for-service basis to manage and invest in approved assets on their clients' behalf. They usually act for the smaller collective investment institutions such as public unit trusts. They are not accessible to the small investor. Investment managers provide a sophisticated level of service matching assets and liabilities. They act in the main as the managers of pooled funds, but also manage clients' investments on an individual portfolio basis.

A considerable proportion of the assets of collective investment institutions, particularly the statutory funds of life insurance corporations and

assets of pension funds, is channelled through investment managers. At 30 June 1999, \$390,100m, or 67% of the unconsolidated assets of collective investment institutions, were channelled through investment managers. Table 26.24 shows the total unconsolidated assets of each type of collective investment institution and the amount of these assets invested through investment managers.

Investment managers also accept money from investors other than collective investment institutions. At 30 June 1999, investment managers invested \$80,275m on behalf of government bodies, general insurers and other clients, including overseas clients.

**26.24 ASSETS OF MANAGED FUNDS, Invested through Investment Managers—30 June 1999**

	Unconsolidated assets of managed funds	Assets invested with investment managers
Type of fund	\$m	\$m
Statutory funds of life insurance corporations(a)	173 476	134 760
Pension and approved deposit funds	268 251	158 373
Public unit trusts	103 786	67 245
Friendly societies	6 500	5 179
Common funds	7 721	5 011
Cash management trusts	21 436	19 532
<b>Total</b>	<b>581 170</b>	<b>390 100</b>

(a) Includes both superannuation and ordinary business.

Source: *Managed Funds, Australia* (5655.0).



## Lending by financial institutions

The lending activities of financial institutions are grouped for statistical purposes into four major types of lending—housing, personal, commercial and leasing. Information regarding housing finance is presented in *Chapter 8, Housing*. Table 26.25 shows the size of commitments by financial institutions for the four types of lending. It should be noted that, although commitments are firm offers of finance made by institutions that have been accepted by borrowers, not all commitments are taken up by borrowers.

**26.25 FINANCIAL INSTITUTIONS, Lending Commitments**

	1996-97	1997-98	1998-99
Type of lending activity	\$m	\$m	\$m
Housing finance	49 978	54 663	61 471
Personal finance	35 568	42 921	46 576
Commercial finance	154 537	172 489	171 979
Lease finance	7 378	8 983	9 486
<b>Total</b>	<b>247 461</b>	<b>279 056</b>	<b>289 512</b>

Source: See the tables which follow for each type of lending.

## Lease finance

The statistics in tables 26.26 and 26.27 measure lease finance commitments made by significant lenders (banks, money market corporations, finance companies, general financiers, etc.) to trading and financial enterprises, non-profit organisations, governments, public authorities and individuals.

**26.26 LEASE FINANCE COMMITMENTS, By Type of Lessor**

	1996-97	1997-98	1998-99
Type of lessor	\$m	\$m	\$m
All banks	2 676	2 995	3 683
Money market corporations	366	428	357
Finance companies	3 191	3 741	3 762
General financiers	1 146	1 817	1 682
<b>Total</b>	<b>7 379</b>	<b>8 981</b>	<b>9 484</b>

Source: Lease Finance, Australia (5644.0.40.002).

**26.27 LEASE FINANCE COMMITMENTS, By Type of Goods Leased**

	1996-97	1997-98	1998-99
Type of good	\$m	\$m	\$m
Motor vehicles and other transport equipment	4 216	5 122	5 283
Construction and earth moving equipment	366	409	387
Agricultural machinery and equipment	489	534	584
Automatic data processing equipment and office machinery	1 139	1 591	1 610
Shop and office furniture, fittings and equipment	278	278	332
Other goods	889	1 046	1 289
<b>Total</b>	<b>7 379</b>	<b>8 980</b>	<b>9 485</b>

Source: Lease Finance, Australia (5644.0.40.002).

## Personal finance

Tables 26.28 and 26.29 present statistics of commitments made by significant lenders (banks, credit cooperatives, finance companies, etc.) to lend to individuals for their own personal (non-business) use. The revolving credit commitments provided in Table 26.29 include commitments for overdrafts, credit cards and other personal revolving lines of credit.

**26.28 PERSONAL FINANCE COMMITMENTS, By Type of Lender(a)**

	1996-97	1997-98	1998-99
Type of lender	\$m	\$m	\$m
All banks	25 912	31 477	34 480
Finance companies	5 391	6 654	7 273
Credit cooperative	3 222	3 339	3 284
Other lenders(b)	1 043	1 449	1 537
<b>Total</b>	<b>35 568</b>	<b>42 921</b>	<b>46 574</b>

(a) Includes both fixed loan facilities and new and increased lending commitments under revolving credit facilities.

(b) Includes permanent building societies, general financiers and retailers.

Source: Personal Finance, Australia (5642.0.40.002).

**26.29 PERSONAL FINANCE COMMITMENTS, By Type of Facility**

	1996–97	1997–98	1998–99
Type of facility	\$m	\$m	\$m
Fixed loan commitments	21 127	22 279	21 136
Revolving credit commitments			
New and increased credit limits	14 441	20 640	25 438
Cancellations and reductions in credit limits	7 110	7 153	7 431
Credit limits at 30 June			
Total	51 601	69 980	81 087
Used	21 358	29 408	36 730

Source: Personal Finance, Australia (5642.0.40.002).

**26.31 FIXED COMMERCIAL FINANCE COMMITMENTS, By Purpose**

	1996–97	1997–98	1998–99
Purpose	\$m	\$m	\$m
Construction	7 435	10 861	8 025
Purchase of real property(a)	24 501	29 600	28 115
Purchase of plant and equipment	9 728	7 705	7 641
Refinancing	12 680	12 081	11 384
Other purposes	21 634	30 973	36 007
<b>Total</b>	<b>75 976</b>	<b>91 220</b>	<b>91 172</b>

(a) Purchase of real property includes those finance commitments to individuals for the purchase of dwellings for rental or resale.

Source: Commercial Finance, Australia (5643.0.40.002).

**Commercial finance**

The statistics in tables 26.30 and 26.31 measure commitments, made by significant lenders (banks, finance companies, money market corporations, etc.) to lend to government, private and public enterprises, non-profit organisations and individuals for investment and business purposes.

**26.30 COMMERCIAL FINANCE COMMITMENTS(a), By Type of Lender**

	1996–97	1997–98	1998–99
Type of lender	\$m	\$m	\$m
All banks	113 637	132 653	142 704
Finance companies	7 786	5 985	4 526
Money market corporations	26 198	23 965	16 495
Other lenders(b)	6 914	9 885	8 251
<b>Total</b>	<b>154 535</b>	<b>172 488</b>	<b>171 976</b>

(a) Includes both fixed loan facilities and new and increased lending commitments under revolving credit facilities.

(b) Includes permanent building societies, general financiers and pastoral finance companies.

Source: Commercial Finance, Australia (5643.0.40.002).

**Money and the payments system**

The payments system supports trade and commerce in a market economy. Notes and coin are one means of payment. Liquid balances held at financial institutions are also available potentially for transactions needs, under cheque and other forms of transfer facilities, and thus add to the money supply.

From 1 July 1998 a new financial regulatory framework came into effect, in response to the recommendations of the Financial System Inquiry (the Wallis Committee). Under these arrangements the Reserve Bank has stronger regulatory powers in the payments system in accordance with the *Payments Systems (Regulations) Act 1998*, to be exercised by a Payments System Board within the Bank.

**Money**

Australia has a decimal system of currency, the unit being the dollar, which is divided into 100 cents. Australian notes are issued in the denominations of \$5, \$10, \$20, \$50 and \$100 and coins in the denominations of 5c, 10c, 20c, 50c, \$1 and \$2. \$1 and \$2 notes were replaced by coins in 1984 and 1988 respectively, and 1c and 2c coins ceased to be issued from 1 February 1992. Table 26.32 shows the value of notes on issue at the last Wednesday of June the last three financial years. Table 26.33 shows the value of coin on issue at the same time points.

**26.32 VALUE OF AUSTRALIAN NOTES ON ISSUE**

	Last Wednesday in June		
	1997	1998	1999
	\$m	\$m	\$m
\$1	19	19	0
\$2	47	47	46
\$5	351	361	379
\$10	601	617	639
\$20	1 837	1 804	1 850
\$50	8 912	9 523	10 356
\$100	8 297	9 280	10 282
<b>Total</b>	<b>20 064</b>	<b>21 651</b>	<b>23 552</b>
	%	%	%
Increase	4.6	7.9	8.8

Source: Reserve Bank of Australia.

**26.33 VALUE OF AUSTRALIAN DECIMAL COIN ON ISSUE**

	Last Wednesday in June		
	1997	1998	1999
	\$m	\$m	\$m
1c	22.6	22.5	22.4
2c	30.3	29.9	29.7
5c	106.8	111.5	117.3
10c	98.8	101.9	107.2
20c	142.7	147.5	154.5
50c	210.3	214.9	224.5
\$1	351.8	364.7	380.6
\$2	492.0	518.0	551.9
<b>Total</b>	<b>1 455.1</b>	<b>1 510.9</b>	<b>1 588.1</b>
	%	%	%
Increase	4.4	3.8	5.1

Source: Reserve Bank of Australia.

**Money supply measures**

The money supply, as measured and published by the Reserve Bank, refers to the amount of cash held by the public plus deposits with specified financial institutions. The measures range from the narrowest category, money base, through to the widest category, broad money, with other measures in between. The measures mainly used are as follows.

- *Money base*, which comprises holdings of notes and coin by the private sector, deposits of banks with the Reserve Bank, and other Reserve Bank liabilities to the private sector.
- *M3*, which is defined as currency plus bank deposits of the private non-bank sector.
- *Broad money*, which is defined as M3 plus borrowings from the private sector by non-bank financial intermediaries (including

cash management trusts) less their holdings of currency and bank deposits.

The money supply under each of these measures at end June of the last three years is shown in table 26.34.

**26.34 MONEY SUPPLY MEASURES**

	June 1996	June 1997	June 1998
	\$m	\$m	\$m
Money base	24 546	34 115	31 424
M3	290 485	321 014	340 891
Broad money	349 389	383 307	405 770
Percentage change	. .	9.7%	5.9%

Source: Reserve Bank of Australia.

**Payments system**

Following recommendations by the Financial System (Wallis) Inquiry, the Payments System Board was established within the Reserve Bank on 1 July 1998. The Payments System Board has responsibility for determining the Reserve Bank's payments system policy, under the powers set out in the *Payments Systems (Regulation) Act, 1998*. The payments system has separate components for settling large amounts and retail amounts.

The High Value Clearing System (HVCS) was implemented in August 1997. The HVCS allows all holders of Reserve Bank exchange settlement accounts to settle large value payments through a system designed to process a high volume of transactions. On 1 March 1999 the Payments System Board announced the easing of restrictions on eligibility for holding exchange settlement accounts. APRA-supervised institutions and some institutions not supervised by APRA potentially now have access.

Initially, the settlement of payments was on a net deferred basis, where settlement of interbank obligations was not completed until 9 am on the day following the sending of payment instructions. This was changed to a real-time gross settlement (RTGS) basis on 22 June 1998. This new settlement basis, where payments are settled immediately, contributes substantially to the reduction of settlement risk and systemic risk in the Australian payments system.

Additionally, the Board has declared the Reserve Bank Information and Transfer System (RITS) and the Austraclear System (FINTRACS) to be approved RTGS systems.

Table 26.35 highlights the growth of publicly available electronic access points into the payments system. The major growth has been in the number of EFTPOS terminals in Australia as more retailers provide a means to transfer funds electronically at the point of sale. This enables their customers to use debit cards as well as credit cards.

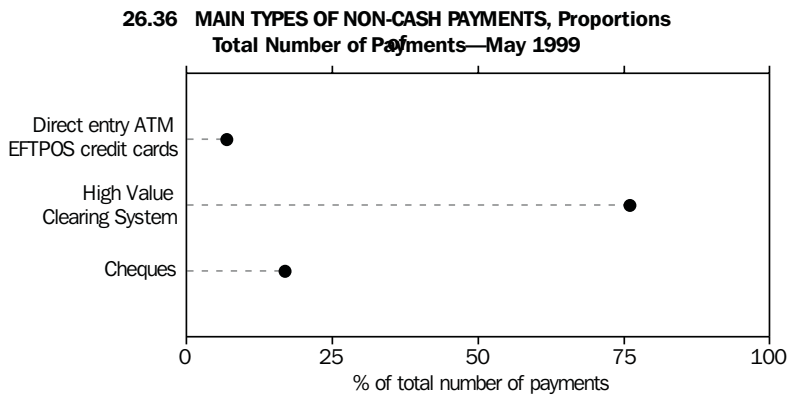
About 80% of the value exchanged in the payments system is cleared via the HCVS.

Smaller (retail) non-cash payments are effected by various means, as shown in graph 26.36.

**26.35 ELECTRONIC ACCESS POINTS**

	June 1996	June 1997	June 1998
	no.	no.	no.
Automatic teller machines	7 718	8 182	8 814
EFTPOS terminals	136 645	164 199	218 330

Source: Australian Payments Clearing Association Limited, 1998 Annual Report.



Source: Reserve Bank of Australia, August Bulletin, 1999.

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## Introduction

The main functions of government are the provision of non-market services, the regulation of economic and social conditions, and the redistribution of income between sections of the community. These activities are primarily financed by taxation and are carried out by entities in the general government sector. In addition to this core activity, governments can also own or control enterprises that sell goods or services to the public and which operate largely on a commercial (or market) basis (public non-financial corporations) or engage in financial intermediation (public financial corporations).

The statistics in this chapter measure the activity of the public sector, which comprises general government entities, public non-financial and public financial corporations. These entities are described in the next section.

The Australian system of Government Finance Statistics (GFS) is used to derive the statistics presented in this chapter. GFS focuses on financial transactions such as governments' spending, lending, taxing and borrowing activities, and reflects the impact of these transactions on other sectors of the economy. GFS comprises both cash (for general government) and accrual (for public non-financial and financial corporations) methods of recording transactions, and is based on international standards specified in the *A Manual on Government Finance Statistics* and the *System of National Accounts* (SNA93).

## Public sector

The public sector comprises all organisations owned or controlled by any of the three levels of government within the Australian political system:

- Commonwealth;
- State/Territory; and
- local.

It can be divided into the institutional sectors described below, based on the characteristics of the organisations it comprises. These sectors are:

- *General government.* The principal function of general government entities is to provide non-market goods and services (e.g. roads, hospitals, libraries) primarily financed by taxes, to regulate and influence economic activity, to maintain law and order, and to redistribute income by means of transfer payments.

This institutional sector covers the departments of the Commonwealth Government, State Governments and local government municipalities. It also includes agencies and government authorities under departmental administration which are engaged in the provision of public administration, defence, law enforcement, welfare, public education, and health. Also included are non-departmental bodies which independently perform the government functions of regulation (e.g. Nurses Registration Boards and the Maritime Safety Authority), provision of non-market services (e.g. the Australian Broadcasting Corporation), and redistribution of income (e.g. the Aboriginal and Torres Strait Islander Commission). Some of these bodies may be corporations, but they are still considered part of the general government sector if they perform general government functions.

Unincorporated government enterprises which provide goods and services to their governments and to the public at prices that are not economically significant (such as cafeterias for government employees, and municipal swimming pools) are also included in this sector. In addition, government quasi-corporations which sell their output exclusively to other government units, while not in open competition with other producers, are classified as general government units.

- *Public non-financial corporations.* The main function of public non-financial corporations is to provide goods and services which are predominantly market, non-regulatory and non-financial in nature, and financed through sales to consumers of these goods and services.

Enterprises in the public non-financial corporations sector differ from those in the general government sector in that all or most of their production costs are recovered from consumers, rather than being financed from the general taxation revenue of government. Some enterprises, however, do receive subsidies to make up for shortfalls incurred as a result of government policy, for example in the provision of 'community service obligations' at concessional rates.



Public non-financial corporations vary in their degree of 'commerciality', from those which are quite heavily reliant on parent governments for subsidies, such as rail and bus transport undertakings, to those which are net contributors to government revenue.

Governments may exercise control over public non-financial corporations by either owning more than 50% of the voting stock or otherwise controlling more than half the shareholders' voting power, or through legislation, decree or regulation which empowers the government to determine corporate policy or to appoint the directors. Examples of public non-financial corporations are: Telstra, Australia Post, State Rail and local bus and transport operations.

- *Public financial corporations.* These are government owned or controlled corporations which engage in financial intermediation (i.e. trade in financial assets and liabilities), such as central borrowing authorities, government banks and insurance offices, or home lending schemes. The inclusion of public financial corporations (PFCs) in government finance statistics makes GFS consistent in scope with the new Australian accounting standard for whole of government reporting *Australian Accounting Standard AAS31 Financial Reporting by Governments*. Although PFCs as a whole were previously not included in GFS, one category of PFCs, namely Central Borrowing Authorities (CBAs), was included and treated as part of the general government sector. Since CBAs carry out virtually all State and Territory Government financing activity, they are more correctly classified as PFCs. Other PFCs which carry out government social policies (e.g. home finance schemes, rural finance schemes) are also included in the PFC sector.

Universities are most appropriately classified to a separate 'multi-jurisdictional' category within the general government sector for the Commonwealth and States/Territories combined, to reflect the role that both the Commonwealth Government and all State/Territory Governments have in their financing and control. Consequently, separate statistics are presented for the universities sector in table 27.20.

The Australian GFS system presents statistics relating to:

- consolidated transactions of the various public authorities, presented so that the economic impact of government activity can be assessed;
- transactions of the different levels of government, reflecting their different roles in undertaking and financing their expenditure programs;
- transactions of each government jurisdiction, so that the statistics can be used to indicate the comparative standing of each government jurisdiction in terms of its expenditure, its sources of revenue, and its financing transactions; and
- transactions presented to identify the purposes that are being served by government expenditure programs.

To assist users, *Government Finance Statistics Australia: Concepts, Sources and Methods* (5514.0) outlines the major concepts, provides definitions of the statistical units, and contains the main classifications employed. The GFS classifications applied in the tables in this chapter are:

- the Economic Type Framework (ETF) which categorises outlays, revenue and grants received and financing according to their economic character, to facilitate the study of the macroeconomic effects of government activity;
- the Government Purpose Classification (GPC) which classifies outlays according to the purpose or function served; and
- the Taxes Classification which classifies this major form of government revenue according to type of tax collected.

## General government output as a percentage of GDP

Despite the fact that most goods and services provided by general government bodies are not normally sold, their output is still regarded as part of production. The output of government is valued at cost and comprises total final consumption expenditure (principally wages and salaries paid to the employees of general government bodies and the cost of purchased goods and services used), plus an allowance for the consumption of fixed capital. Table 27.1 shows general government's share of GDP for the years 1993–94 to 1997–98.

**27.1 GENERAL GOVERNMENT OUTPUT, Percentage of GDP(a)**

	1993–94	1994–95	1995–96	1996–97	1997–98
Sector	%	%	%	%	%
Commonwealth and universities	7.8	7.7	7.6	7.4	7.3
State, Territory and local	11.0	10.7	10.7	10.8	10.8
<b>Total</b>	<b>18.7</b>	<b>18.4</b>	<b>18.3</b>	<b>18.2</b>	<b>18.1</b>

(a) The expenditure based estimates of GDP and the estimates for consumption of fixed capital used in the above calculations are from Australian System of National Accounts, 1997–98 (5204.0).

Source: *Government Finance Statistics, Australia, 1997–98* (5512.0).

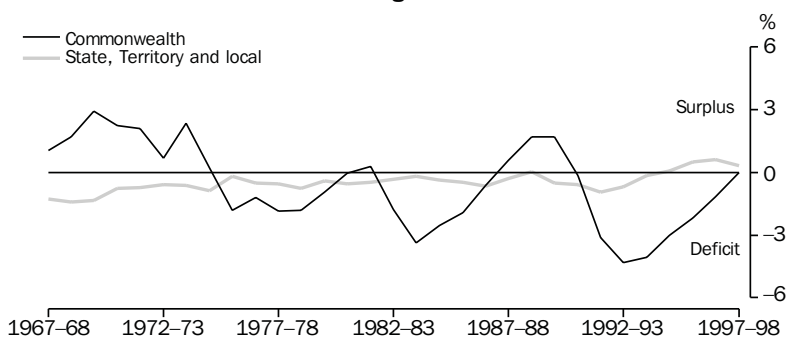
**Deficit/surplus**

In GFS, the deficit/surplus reflects the balance between government outlays and government revenue. It measures the extent to which government is increasing (surplus) or decreasing (deficit) its net financial position.

Previously, net advances (covering loans and repayments of loans made for policy purposes, and purchases/sales of equity) were included in outlays. These transactions are no longer classified as outlays because they are considered to be more in the nature of financing. This change results in a more useful measure of total outlays and removes the necessity to calculate the deficit adjusted for net advances.

Graph 27.2 shows the movements in the deficit as a percentage of the income based measure of GDP from 1967–68 to 1997–98, for the Commonwealth Government and State/Territory and local levels of government combined.

The graph demonstrates the strong cyclical pattern of the Commonwealth Government deficit/surplus. It is also evident that, over the period shown in the graph, there has been a reduction in the average level of deficits for State/Territory and local governments.

**27.2 GENERAL GOVERNMENT DEFICIT/SURPLUS, Percentage of GDP**

Source: *Government Finance Statistics, Australia, 1997–98* (5512.0).

## **Implementation of System of National Accounts 1993 (SNA93) in Government Finance Statistics**

A number of changes have been incorporated into government finance statistics relating to the implementation of the new international statistical standard, SNA93. These changes are outlined below.

### **Defence capital expenditure**

SNA93 requires the purchase of defence capital assets to be shown as capital expenditure, with the qualification that weapons delivery systems and weapons platforms be treated as current consumption. This is an important qualification, since weapons platforms (aeroplanes, ships, etc.) are often the dominant component of defence capital expenditure. Under AAS31, however, the acquisition of capital assets is treated the same irrespective of the purpose for which they are acquired.

For the purposes of GFS, the ABS has adopted the AAS31 treatment, while the Australian System of National Accounts will be based on the SNA93 treatment. There is no difference in the net lending measure between these two sets of statistics. However, there are differences between the equivalent current or operating balances. This item affects only the Commonwealth.

### **Social transfers in kind**

Pharmaceutical benefits, rental subsidies, low cost or free transport for school children and social security recipients, and reduced utility charges, were formerly treated as personal benefit payments. As such, these formed part of current transfers from government to households.

SNA93 regards the above benefits as social benefits in kind and includes them in government final consumption expenditure. The ABS has reclassified pharmaceutical benefits and other social benefits in kind from personal benefits to general government final consumption expenditure to meet the new standard. This reclassification has not changed total outlays or the deficit.

### **Regulatory fees**

The concept of compulsory or regulatory fees is not used in SNA93. Where general government units undertake some work in return for a fee, the fee is treated as sales of goods and services, (i.e. as user charges). However, where the level of the fee is out of all proportion to any work performed or if no work is performed, the fee is treated as a tax.

To meet this requirement, the ABS has reclassified all regulatory fees as user charges.

### **Fines**

SNA93 treats fines as other current transfers and not part of a broader taxes, fees and fines category. Because of this, the ABS has reclassified fines to other current revenue. This has reduced taxes and increased other revenue.

### **Taxes**

Drivers' licences are treated in SNA93 as sales of government services and have therefore been reclassified to user charges. This has reduced taxes and general government final consumption expenditure.

## Financing of all levels of government combined

The outlays, revenue and financing transactions of the general government, public financial and public non-financial corporations sectors for all levels of government combined are shown in tables 27.3, 27.4. and 27.5. Table 27.6 shows a dissection of taxes, the largest component of government revenue.

In 1997–98, outlays for the general government sector for Australia totalled \$182,815m, a 1.9% increase over the 1996–97 result of \$179,384m.

Outlays for the public non-financial corporations sector fell by 6.3% from \$21,992m in 1996–97 to \$20,598m in 1997–98. Outlays of public non-financial corporations comprise mainly capital expenditures, interest payments and transfers to government, and do not include operating expenditure, which is offset against revenue.

Outlays for the public financial enterprises sector fell by 10.0% from \$12,319m in 1996–97 to \$11,089m in 1997–98.

General government total revenue increased by 4.7% from \$177,327m in 1996–97 to \$185,643m in 1997–98. The proportion of general government total revenue raised from taxes, for 1997–98 was 91%.

Public non-financial corporations revenue rose by 2.4% from \$16,248m in 1996–97 to \$16,646m in 1997–98. The predominant source of public non-financial corporations revenue is the net operating surplus of enterprises, which comprises

operating revenue less operating expenditure. This item contributed 81.9% of public non-financial corporations revenue in 1997–98.

Public financial corporations revenue decreased by 7.6% from \$12,244m in 1996–97 to \$11,308m in 1997–98. This decrease was caused mainly by a 9.5% drop in interest revenue from \$13,205m in 1996–97 to \$11,951m in 1997–98.

There was a turnaround in the general deficit/surplus from a deficit of \$3,011m in 1996–97 to a surplus of \$1,593m in 1997–98. The current surplus rose from \$12,600m in 1996–97 to \$15,150m in 1997–98, reflecting higher revenue from taxation together with a slightly lower increase in current expenditure. The capital deficit fell from \$15,611m in 1996–97 to \$13,567m in 1997–98.

The surplus for the public non-financial corporations sector, \$1,560m in 1996–97, rose to \$3,232m in 1997–98, due mainly to reduced capital expenditure in 1997–98.

The public financial corporations sector moved from a deficit of \$6m in 1996–97 to a surplus of \$317m in 1997–98, due mainly to reduced interest and dividend payments in 1997–98.

The outlays, revenue and deficit/surplus of each level of government are not additive, as financial transactions may occur between the Commonwealth Government, State/Territory Governments and local governments. For example, grants are paid by the Commonwealth Government to State Governments or local governments (either directly or via the State Government for onpassing); and interest is paid and advances are made across the three levels.

**27.3 ALL AUSTRALIAN GOVERNMENTS AND UNIVERSITIES, General Government**

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Gross expenditure on goods and services	84 288	88 316	92 339	97 701	102 238	109 785
Less sales of goods and services(a)	12 462	13 787	14 804	14 980	16 022	18 285
Equals final consumption expenditure	71 826	74 530	77 534	82 721	86 217	91 500
Interest payments	10 384	11 759	13 127	14 331	13 860	12 613
Subsidies paid to public	3 000	2 928	2 608	2 460	3 191	3 379
Personal benefit payments	36 659	39 622	40 828	43 809	46 119	46 533
Other transfer payments	10 307	11 238	12 068	13 050	13 674	14 333
<i>Total</i>	<i>132 175</i>	<i>140 076</i>	<i>146 166</i>	<i>156 371</i>	<i>163 061</i>	<i>168 359</i>
Capital						
Expenditure on new fixed assets	13 275	13 163	13 735	14 157	15 069	15 914
Plus expenditure on second-hand assets (net)	-1 055	-1 245	-1 177	-1 739	-1 778	-2 929
Equals gross fixed capital expenditure	12 220	11 917	12 558	12 419	13 291	12 985
Expenditure on land and intangible assets (net)	-290	-485	-393	-205	-128	-671
Grants to public non-financial corporations	2 037	2 160	2 085	1 988	2 517	1 464
Grants to non-profit institutions	466	392	387	386	473	489
Other	213	129	110	167	170	189
<i>Total</i>	<i>14 646</i>	<i>14 114</i>	<i>14 748</i>	<i>14 755</i>	<i>16 323</i>	<i>14 456</i>
<b>Total</b>	<b>146 821</b>	<b>154 190</b>	<b>160 914</b>	<b>171 126</b>	<b>179 384</b>	<b>182 815</b>
<b>REVENUE</b>						
Taxes	116 166	123 517	136 395	149 541	160 911	168 936
Interest received from public non-financial corporations	802	720	785	555	480	428
Interest received from public financial corporations	411	346	391	540	515	465
Interest received from other sectors	1 630	1 607	1 627	2 024	2 108	2 798
Other	7 881	10 437	8 792	11 266	13 312	13 016
<b>Total</b>	<b>126 890</b>	<b>136 627</b>	<b>147 990</b>	<b>163 926</b>	<b>177 327</b>	<b>185 643</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowing and advances received (net)	21 937	15 541	13 476	-1 700	-5 287	-20 201
Other financing transactions (net)	-3 087	-2 354	-1 792	-363	-3 482	-1 753
Less net advances paid	-1 080	-4 376	-1 240	-9 264	-10 826	-19 126
<i>Total financing</i>	<i>19 930</i>	<i>17 564</i>	<i>12 924</i>	<i>7 201</i>	<i>2 057</i>	<i>-2 828</i>
Less increase in provisions (net)	1 333	1 198	1 118	1 042	954	1 245
<b>Equals deficit or surplus (-)</b>	<b>21 263</b>	<b>18 762</b>	<b>14 042</b>	<b>8 242</b>	<b>3 011</b>	<b>-1 583</b>
Of which						
Current deficit (b)	6 882	5 052	-315	-6 000	-12 600	-15 150
Capital deficit (c)	14 381	13 710	14 357	14 242	15 611	13 567

(a) This item provides an indication of the extent of government charges levied. The charges (excluding inter-agency charges) are offset against gross expenditure in calculating final consumption expenditure and mainly comprise sales to the private sector.

(b) Current outlays minus current revenues and current grants received less increase in provisions. (c) Capital outlays less capital revenues and capital grants received.

Source: Government Finance Statistics, Australia, 1997-98 (5512.0).

**27.4 ALL AUSTRALIAN GOVERNMENTS, Public Non-Financial Corporations**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Interest payments	7 106	6 204	5 977	5 174	4 791	4 174
Income transferred to general government	1 871	3 434	3 660	5 369	6 636	5 850
Other transfer payments	1 729	1 459	1 322	1 740	956	2 351
<i>Total</i>	<i>10 706</i>	<i>11 097</i>	<i>10 959</i>	<i>12 283</i>	<i>12 383</i>	<i>12 375</i>
Capital						
Expenditure on new fixed assets	11 436	10 954	11 927	11 606	12 122	11 244
Plus expenditure on second-hand assets (net)	-1 526	-1 799	-855	-1 056	-2 841	-3 307
Equals gross fixed capital expenditure	9 910	9 154	11 072	10 550	9 280	7 937
Expenditure on land and intangible assets (net)	72	-314	-187	-69	459	74
Grants to other levels of governments	120	52	27	9	304	238
Grants to other sectors	38	45	59	56	—	47
Other	360	-594	-551	3	-435	-73
<i>Total</i>	<i>10 501</i>	<i>8 343</i>	<i>10 420</i>	<i>10 549</i>	<i>9 609</i>	<i>8 223</i>
<b>Total</b>	<b>21 207</b>	<b>19 439</b>	<b>21 379</b>	<b>22 833</b>	<b>21 992</b>	<b>20 598</b>
<b>REVENUE</b>						
Sales of goods and services	62 231	68 288	70 988	68 421	67 450	66 499
Plus subsidies received	2 849	2 879	2 533	2 524	3 163	3 231
Less operating expenditure	53 468	58 066	61 403	59 522	58 607	56 096
Equals net operating surplus	11 612	13 102	12 118	11 424	12 006	13 634
Interest received from general government	99	56	97	98	119	32
Interest received from public financial corporations	103	62	120	144	91	146
Interest received from other sectors	586	475	644	615	744	557
Capital grants received	2 055	2 171	2 086	1 990	2 509	1 446
Other	764	936	1 187	836	779	832
<b>Total</b>	<b>15 219</b>	<b>16 802</b>	<b>16 252</b>	<b>15 106</b>	<b>16 248</b>	<b>16 646</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowings received (net)	-432	-3 348	-3 297	-4 843	1 093	-1 594
Advances received (net)	-132	-661	-166	-6 130	-7 077	-3 891
Other financing transactions (net)	6 552	6 646	8 590	18 699	11 728	9 437
<i>Total financing</i>	<i>5 989</i>	<i>2 637</i>	<i>5 127</i>	<i>7 726</i>	<i>5 744</i>	<i>3 952</i>
Less increase in provisions (net)	7 380	6 616	8 775	8 058	7 304	7 184
<b>Equals deficit or surplus (-)</b>	<b>-1 391</b>	<b>-3 979</b>	<b>-3 649</b>	<b>-332</b>	<b>-1 560</b>	<b>-3 232</b>
Of which						
Current deficit	-9 119	-9 324	-10 926	-8 145	-7 972	-9 291
Capital deficit	7 728	5 345	7 277	7 813	6 412	6 059

Source: Government Finance Statistics, Australia, 1997–98 (5512.0).

**27.5 ALL AUSTRALIAN GOVERNMENTS, Public Financial Corporations**

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Interest payments	16 092	15 843	16 062	15 669	9 740	8 811
Dividends paid	3 371	4 133	2 192	2 910	2 689	2 044
Other transfer payments	1 097	568	720	1 001	172	195
<i>Total</i>	20 560	20 545	18 973	19 580	12 601	11 050
Capital						
Gross fixed capital expenditures	444	526	342	-469	-296	26
Expenditure on land and intangible assets (net)	14	-58	-12	-61	11	14
Other	1	-3	-1	—	4	-1
<i>Total</i>	460	465	329	-530	-281	39
<b>Total</b>	<b>21 019</b>	<b>21 011</b>	<b>19 302</b>	<b>19 050</b>	<b>12 319</b>	<b>11 089</b>
<b>REVENUE</b>						
Sales of goods and services	6 703	7 609	7 190	7 531	5 715	5 295
Plus subsidies received	357	342	245	289	267	301
Less operating expenditure	9 927	10 334	10 011	10 315	7 259	6 534
Equals net operating surplus	-2 867	-2 383	-2 577	-2 495	-1 277	-938
Interest received from general government	4 440	4 833	4 763	4 901	4 284	3 897
Interest received from public non-financial corporations	2 763	3 290	3 297	3 430	2 931	2 554
Interest received from other sectors	16 000	14 941	15 015	14 494	5 990	5 500
Other	405	379	311	398	316	295
<b>Total</b>	<b>20 740</b>	<b>21 060</b>	<b>20 809</b>	<b>20 727</b>	<b>12 244</b>	<b>11 308</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowing and deposits received	7 932	-6 110	-2 429	-3 695	-5 482	-707
Advances received (net)	644	-1 111	-37	-652	-250	-436
Other financing transactions (net)	-8 296	7 172	959	2 670	5 807	925
<i>Total financing</i>	279	-49	-1 507	-1 676	75	-219
Less increase in provisions (net)	1 544	844	493	979	69	99
<b>Equals deficit or surplus (-)</b>	<b>-1 265</b>	<b>-893</b>	<b>-2 000</b>	<b>-2 655</b>	<b>6</b>	<b>-317</b>
Of which						
Current deficit	-1 664	-1 326	-2 283	-2 087	327	-309
Capital deficit	399	433	283	-569	-321	-8

Source: Government Finance Statistics, Australia, 1997-98 (5512.0).

## 27.6 TAXES OF ALL LEVELS OF GOVERNMENT

Type of tax	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Taxes on income</b>						
Income taxes levied on individuals	47 529	50 572	54 636	60 605	66 280	70 785
Income taxes levied on corporations	14 502	14 152	17 352	19 122	21 999	22 605
Income taxes levied on non-residents	827	766	778	1 193	936	1 011
<i>Total</i>	62 858	65 489	72 764	80 920	89 216	94 401
<b>Employers' payroll taxes</b>						
General taxes (payroll tax)	5 637	5 853	6 394	6 884	7 407	7 815
Selective taxes (stevedoring industry charges)	45	40	64	14	0	0
Other employers' labour force taxes	1 309	1 383	2 687	2 963	3 116	3 121
<i>Total</i>	6 991	7 275	9 145	9 861	10 523	10 936
<b>Taxes on property</b>						
Taxes on immovable property(a)	6 692	6 715	6 744	6 975	7 380	7 790
Taxes on financial and capital transactions	4 901	6 018	5 892	6 157	7 058	7 766
<i>Total</i>	11 592	12 733	12 636	13 130	14 436	15 556
<b>Taxes on provision of goods and services</b>						
General taxes (sales tax)	9 252	10 414	11 624	12 970	13 293	14 085
<b>Excise and levies</b>						
Crude oil and liquid petroleum gas (LPG)	116	62	27	13	9	16
Other excises	9 560	10 751	11 973	12 835	13 282	13 557
Agricultural production taxes	633	647	692	669	617	619
Levies on statutory corporations	469	490	517	456	416	258
<i>Total</i>	10 778	11 950	13 209	13 973	14 324	14 450
Taxes on international trade	3 336	3 230	3 480	3 129	3 295	3 643
Taxes on gambling	2 230	2 576	2 960	3 311	3 500	3 808
Taxes on insurance	1 454	1 598	1 688	1 767	1 815	1 985
<i>Total</i>	27 050	29 769	32 961	35 150	36 227	37 971
<b>Taxes on use of goods and performance of activities</b>						
Motor vehicle taxes	2 615	2 897	3 094	3 217	3 416	3 662
Franchise taxes	3 394	4 000	4 197	4 904	5 221	4 524
Other	272	447	451	647	635	894
<i>Total</i>	6 281	7 344	7 742	8 767	9 273	9 081
<b>Total taxes(b)</b>	<b>114 772</b>	<b>122 610</b>	<b>135 248</b>	<b>147 828</b>	<b>159 675</b>	<b>167 945</b>
Income taxes paid by public non-financial corporations	1 394	908	1 148	1 712	1 236	992

(a) Partly estimated. (b) Excludes income taxes paid by public non-financial corporations.

Source: Government Finance Statistics, Australia, 1997–98 (5512.0).



### **Outlays by purpose**

The Government Purpose Classification is designed to identify the purposes for which government outlays are made. In conjunction with the Economic Type Framework, it provides information for the study of the socio-economic effects of government transactions. Table 27.7 shows a time series of outlays by purpose, for the three levels of government combined. Outlays on social security and welfare, for example, rose by 1.8% from \$52,451m in 1996–97 to \$53,401m in 1997–98 and comprised 27.2% of total government outlays.

### **Commonwealth government finance**

The Commonwealth Government has exclusive responsibility under the Constitution for the administration of a wide range of functions including defence, foreign affairs and trade, and immigration. A distinctive feature of the

Australian federal system is that the Commonwealth Government levies and collects all income tax, from individuals as well as from enterprises. It also collects a significant portion of other taxes, including taxes on the provision of goods and services. The Commonwealth distributes part of this revenue to other levels of government, principally the States and Territories.

### **Outlays, revenue and financing transactions**

The outlays, revenue and financing transactions of the Commonwealth Government for the six year period ending 1997–98 are summarised in tables 27.8 to 27.10. Table 27.11 shows the consolidated outlays of the Commonwealth Government by purpose. In 1997–98, outlays on social security and welfare constituted 35.3% of total outlays; outlays on health constituted 14.7%.

**27.7 TOTAL OUTLAYS, ALL AUSTRALIAN GOVERNMENTS AND UNIVERSITIES,  
Consolidated Government by Purpose(a)**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Purpose classification	\$m	\$m	\$m	\$m	\$m	\$m
General public services	12 713	13 887	13 711	14 015	14 399	14 367
Defence	9 030	9 255	9 148	9 394	9 454	9 827
Public order and safety	5 377	5 506	5 931	6 415	7 053	7 324
Education						
Primary and secondary	11 954	12 172	12 455	13 145	14 016	15 307
University	4 473	4 575	4 922	4 828	5 025	5 052
Technical and Further Education	2 344	2 373	2 460	2 549	2 752	2 716
Other tertiary	18	22	52	86	104	252
Other	2 074	2 036	2 124	2 154	2 306	1 768
Total	20 863	21 179	22 013	22 763	24 203	25 096
Health						
Acute care institutions	10 588	10 576	10 716	11 418	11 935	12 972
Other health institutions	686	704	724	743	857	839
Community health services	6 176	6 589	7 336	8 082	8 545	9 085
Pharmaceuticals	1 678	1 985	2 254	2 581	2 790	3 069
Other	3 543	3 781	4 135	4 470	4 691	5 576
Total	22 672	23 634	25 166	27 294	28 819	31 541
Social security and welfare						
Social security	35 520	38 562	39 833	42 568	45 236	45 375
Welfare services	4 268	4 433	4 786	5 148	5 503	6 167
Other	1 332	1 423	1 504	1 564	1 712	1 859
Total	41 120	44 417	46 122	49 280	52 451	53 401
Housing and community amenities						
Housing and community development	1 999	1 695	2 326	2 044	1 554	1 699
Water supply	817	717	767	675	1 103	1 580
Sanitation and protection of the environment	1 617	1 467	1 900	2 055	1 989	1 912
Other community amenities	316	267	284	331	301	320
Total	4 750	4 146	5 277	5 105	4 947	5 511
Recreation and culture						
Recreational facilities and services	2 091	2 112	1 896	2 475	2 782	3 176
Cultural facilities and services	939	1 139	1 344	1 495	1 571	1 875
Broadcasting and film production	752	579	666	781	759	742
Other	262	109	155	123	116	133
Total	4 045	3 939	4 062	4 875	5 227	5 927
Fuel and energy	2 591	2 083	3 446	3 392	2 555	2 536
Agriculture, forestry and fishing	3 295	2 303	1 992	2 984	2 463	2 798
Mining, manufacturing and construction	621	718	652	730	718	718
Transport and communications						
Road transport	6 321	5 951	5 810	6 194	6 671	6 860
Water transport	306	460	331	213	196	313
Rail and multi-mode transport	2 774	3 473	3 174	3 637	4 314	3 829
Air transport	1 013	571	1 031	444	409	323
Communications and other transport	2 814	2 471	3 644	4 174	3 456	3 473
Total	13 227	12 927	13 990	14 661	15 045	14 798
Other economic affairs	5 287	5 308	5 531	5 499	4 185	3 863
Public debt transactions	25 605	25 792	26 060	25 344	20 165	18 132
Other purposes	682	441	361	454	471	573
<b>Total</b>	<b>171 879</b>	<b>175 535</b>	<b>183 462</b>	<b>192 205</b>	<b>192 155</b>	<b>196 412</b>

(a) Due to transactions between sectors, consolidated totals are not always the sum of totals for the general government and public non-financial corporations sectors.

Source: Government Finance Statistics, Australia, 1997–98 (5512.0).

## 27.8 COMMONWEALTH GOVERNMENT, General Government

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Gross expenditure on goods and services	30 062	31 784	33 138	34 804	35 428	37 745
Less sales of goods and services(a)	2 699	2 784	2 924	2 639	2 852	3 251
Equals final consumption expenditure	27 362	29 000	30 215	32 166	32 575	34 494
Interest payments	5 413	6 630	8 162	9 276	9 613	8 555
Subsidies to public sector enterprises	383	351	331	398	269	257
Subsidies to other enterprises	2 163	2 367	2 426	2 567	2 866	2 700
Personal benefit payments	36 351	39 269	40 478	43 404	45 709	46 064
Grants to State Governments	25 329	24 851	26 248	27 615	28 535	29 262
Grants to private sector	1 901	2 011	2 480	3 102	2 939	2 553
Grants to universities	1 748	3 657	4 003	4 129	4 115	4 123
Grants to local governments	190	186	196	212	210	184
Other transfer payments	1 238	1 318	1 327	1 339	1 174	1 171
<i>Total</i>	102 079	109 640	115 865	124 209	128 006	129 365
Capital						
Expenditure on new fixed assets	4 034	4 230	4 256	4 262	4 119	4 355
Plus expenditure on second-hand assets (net)	-225	-518	-551	-495	-506	-1 394
Equals gross fixed capital expenditure	3 809	3 712	3 705	3 767	3 613	2 962
Expenditure on land and intangible assets (net)	15	-110	-26	7	-52	-258
Grants to public non-financial corporations	30	29	97	6	333	4
Grants to other levels of government	5 236	3 791	3 107	3 028	3 053	2 415
Grants to public financial corporations	59	14	24	13	17	15
Other	256	176	129	152	155	105
<i>Total</i>	9 405	7 612	7 036	6 973	7 120	5 243
<b>Total</b>	<b>111 484</b>	<b>117 252</b>	<b>122 901</b>	<b>131 182</b>	<b>135 126</b>	<b>134 608</b>
<b>REVENUE</b>						
Taxes	88 760	93 362	104 921	115 700	124 559	130 984
Interest received from public non-financial corporations	306	243	159	130	91	77
Interest received from public financial corporations	—	—	2	5	—	—
Interest received from other sectors	2 195	1 838	1 691	1 329	1 073	1 097
Dividends received	3 009	4 463	2 652	3 593	3 661	3 161
Other	178	236	295	348	460	461
<b>Total</b>	<b>94 448</b>	<b>100 142</b>	<b>109 720</b>	<b>121 105</b>	<b>129 845</b>	<b>135 779</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowing and advances received (net)	16 206	14 829	12 775	4 165	-625	-18 063
Other financing transactions (net)	-1 739	-1 177	-1 130	676	-1 436	1 682
Less advances paid	2 568	3 456	1 537	5 235	7 341	15 208
<i>Total financing</i>	17 036	17 109	13 181	10 076	5 281	-1 172
Less increase in provisions (net)	1 330	1 173	1 157	1 050	966	1 256
<b>Equals deficit (+) or surplus (-)</b>	<b>18 366</b>	<b>18 282</b>	<b>14 338</b>	<b>11 126</b>	<b>6 246</b>	<b>84</b>
Of which						
Current deficit(b)	8 962	10 671	7 302	4 153	-874	-5 158
Capital deficit(c)	9 404	7 611	7 036	6 973	7 120	5 243

(a) This item provides an indication of the extent of government charges levied. The charges (excluding inter-agency charges) are offset against gross expenditure in calculating final consumption expenditure and mainly comprise sales to the private sector.

(b) Current outlays minus current revenues and current grants received less increase in provisions. (c) Capital outlays less capital revenues and capital grants received.

Source: Government Finance Statistics, Australia, 1997-98 (5512.0).

**27.9 COMMONWEALTH GOVERNMENT, Public Non-Financial Corporations**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Interest payments	2 113	1 882	1 677	1 095	1 099	953
Dividends paid	339	1 117	937	1 393	1 491	1 427
Other transfer payments	1 251	1 040	958	1 370	658	1 997
<i>Total</i>	3 703	4 038	3 572	3 858	3 248	4 377
Capital						
Expenditure on new fixed assets	4 039	3 357	4 331	4 485	4 995	4 062
Plus expenditure on second-hand assets (net)	–304	–413	–262	–153	–284	–299
Equals gross fixed capital expenditure	3 735	2 945	4 069	4 332	4 711	3 763
Expenditure on land and intangible assets (net)	14	–51	–16	28	–47	202
Other	367	–456	–307	–28	–540	–419
<i>Total</i>	4 116	2 438	3 746	4 332	4 124	3 546
<b>Total</b>	<b>7 819</b>	<b>6 476</b>	<b>7 318</b>	<b>8 190</b>	<b>7 373</b>	<b>7 923</b>
<b>REVENUE</b>						
Sales of goods and services	24 773	27 174	28 259	25 317	27 240	27 392
Plus subsidies received	372	355	337	374	252	255
Less operating expenditure	21 087	22 648	23 843	21 096	23 392	21 652
Equals net operating surplus	4 058	4 880	4 753	4 596	4 100	5 995
Interest received from general government	—	—	—	—	—	—
Interest received from public financial corporations	—	—	—	—	—	—
Interest received from other sectors	274	234	359	293	311	211
Capital grants received	30	29	97	6	333	4
Other	23	34	53	33	39	28
<b>Total</b>	<b>4 385</b>	<b>5 178</b>	<b>5 262</b>	<b>4 927</b>	<b>4 782</b>	<b>6 238</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowings received (net)	955	–1 318	–1 734	–321	2 984	–1 011
Advances received (net)	19	–408	15	–586	–3 107	49
Other financing transactions (net)	2 459	3 025	3 776	4 170	2 713	2 647
<i>Total financing</i>	3 433	1 299	2 056	3 263	2 591	1 685
Less increase in provisions (net)	3 237	2 781	4 012	2 735	3 064	2 804
<b>Equals deficit (+) or surplus (–)</b>	<b>196</b>	<b>–1 482</b>	<b>–1 956</b>	<b>527</b>	<b>–473</b>	<b>–1 119</b>
Of which						
Current deficit	–3 890	–3 891	–5 604	–3 798	–4 265	–4 662
Capital deficit	4 086	2 410	3 649	4 326	3 792	3 543

Source: Government Finance Statistics, Australia, 1997–98 (5512.0).

**27.10 COMMONWEALTH GOVERNMENT, Public Financial Corporations**

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Interest payments	4 010	3 645	4 182	5 023	1 160	656
Dividends paid	2 669	3 346	1 715	2 200	2 170	1 734
Other transfer payments	905	375	663	863	29	29
<i>Total</i>	<i>7 584</i>	<i>7 366</i>	<i>6 560</i>	<i>8 087</i>	<i>3 360</i>	<i>2 419</i>
Capital						
Gross fixed capital expenditure	232	262	361	159	25	-5
Expenditure on land and intangible assets (net)	—	—	6	—	19	—
Other	—	—	—	—	5	-5
<i>Total</i>	<i>232</i>	<i>262</i>	<i>367</i>	<i>159</i>	<i>49</i>	<i>-9</i>
<b>Total</b>	<b>7 816</b>	<b>7 628</b>	<b>6 927</b>	<b>8 246</b>	<b>3 409</b>	<b>2 409</b>
<b>REVENUE</b>						
Sales of goods and services	2 382	2 452	2 505	2 588	1 317	1 440
Plus subsidies received	155	110	137	132	108	107
Less operating expenditure	4 681	4 382	4 288	4 294	1 537	1 597
Equals net operating surplus	-2 144	-1 821	-1 646	-1 574	-112	-50
Interest received from general government	—	—	—	—	—	—
Interest received from public non-financial corporations	—	—	—	—	—	—
Interest received from other sectors	9 001	8 349	9 283	10 431	3 053	2 754
Other	112	79	93	76	48	39
<b>Total</b>	<b>6 969</b>	<b>6 608</b>	<b>7 730</b>	<b>8 934</b>	<b>2 988</b>	<b>2 743</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowing and deposits received	5 386	-1 343	-1 939	2 420	12 141	-8 025
Other financing transactions (net)	-4 539	2 363	1 136	-3 108	-11 721	7 691
<i>Total financing</i>	<i>847</i>	<i>1 020</i>	<i>-803</i>	<i>-688</i>	<i>420</i>	<i>-334</i>
Less increase in provisions (net)	843	479	419	410	-25	-147
<b>Equals deficit or surplus (-)</b>	<b>4</b>	<b>541</b>	<b>-1 221</b>	<b>-1 098</b>	<b>445</b>	<b>-187</b>
Of which						
Current deficit	-169	293	-1 564	-1 244	414	-162
Capital deficit	173	248	343	146	31	-25

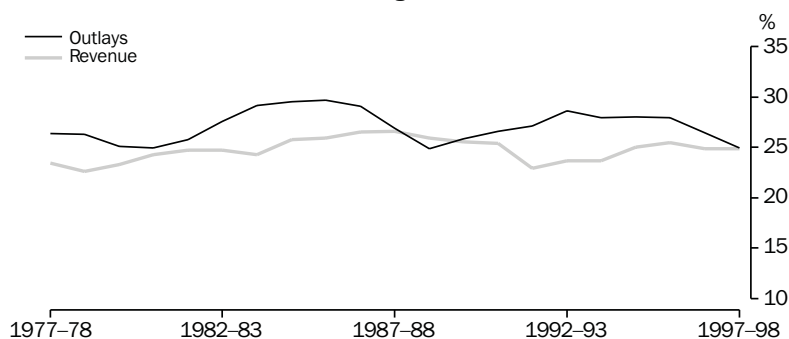
Source: Government Finance Statistics, Australia, 1997-98 (5512.0).

**27.11 TOTAL OUTLAYS OF COMMONWEALTH GOVERNMENT, Consolidated Government by Purpose**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Purpose classification	\$m	\$m	\$m	\$m	\$m	\$m
General public services	6 919	7 279	7 382	7 760	7 917	7 202
Defence	9 030	9 255	9 148	9 394	9 454	9 827
Public order and safety	872	841	873	897	1 177	955
Education						
Primary and secondary	3 442	3 633	3 780	3 913	4 011	4 410
University	4 037	4 336	4 628	4 793	4 725	4 665
Technical and Further Education	788	855	967	1 036	1 198	1 187
Other tertiary	12	17	27	63	82	79
Other	341	364	379	311	381	389
Total	8 619	9 207	9 781	10 116	10 398	10 730
Health						
Acute care institutions	5 198	5 576	5 724	5 903	5 990	6 113
Other health institutions	—	1	10	—	—	—
Community health services	5 268	5 698	6 136	6 587	6 704	7 208
Pharmaceuticals	1 710	2 043	2 306	2 651	2 921	3 261
Other	2 625	2 739	2 923	3 352	3 653	4 146
Total	14 802	16 057	17 099	18 494	19 268	20 728
Social security and welfare						
Social security	35 122	38 207	39 439	42 218	44 826	45 155
Welfare services	2 229	2 453	2 636	2 803	2 903	2 949
Other	1 288	1 356	1 433	1 478	1 588	1 620
Total	38 640	42 016	43 509	46 498	49 316	49 724
Housing and community amenities						
Housing and community development	1 374	1 139	1 111	1 072	822	821
Water supply	24	32	23	30	15	11
Sanitation and protection of the environment	45	53	55	72	68	143
Other	—	—	—	—	5	10
Total	1 443	1 224	1 190	1 175	910	985
Recreation and culture						
Recreational facilities and services	176	231	240	261	184	163
Cultural facilities and services	188	235	241	299	262	303
Broadcasting and film production	742	567	652	766	739	719
Other	—	—	—	—	—	—
Total	1 106	1 033	1 133	1 325	1 185	1 184
Fuel and energy	718	673	833	923	1 023	975
Agriculture, forestry and fishing	2 046	1 078	1 108	1 768	1 232	1 495
Mining, manufacturing and construction	553	493	336	393	367	382
Transport and communications						
Road transport	2 194	1 566	1 554	1 623	1 645	1 277
Water transport	146	146	130	95	111	99
Rail and multi-mode transport	283	233	248	262	380	135
Air transport	1 030	567	1 017	405	351	307
Communications and other transport	2 805	2 468	3 639	4 167	3 510	4 637
Total	6 458	4 980	6 588	6 552	5 996	6 454
Other economic affairs	3 581	3 717	4 021	4 371	2 995	2 529
Public debt transactions	11 230	11 914	13 863	15 264	11 782	10 087
Other purposes	16 312	15 944	16 209	17 235	17 553	17 447
<b>Total</b>	<b>122 328</b>	<b>125 710</b>	<b>133 072</b>	<b>142 165</b>	<b>140 571</b>	<b>140 705</b>

Source: Government Finance Statistics, Australia, 1997–98 (5512.0).

**27.12 COMMONWEALTH GOVERNMENT OUTLAYS AND REVENUE,  
Percentage of GDP**



Source: Government Finance Statistics, Australia, 1997-98 (5512.0).

Graph 27.12 shows the relationship between the movements in outlays and revenue, as a percentage of GDP, for the Commonwealth Government from 1977-78 to 1997-98. The outlays in the graph exclude net advances (i.e. loans made for policy purposes, and sales/injections of equity) and therefore provide a better measure of the underlying movement in government outlays. The Commonwealth Government outlays and revenues fluctuate strongly depending on prevailing economic conditions, and this is reflected in large swings in the deficit/surplus measure (see graph 27.2).

### Financial assistance by the Commonwealth Government to the States and Territories

The taxes levied by the Commonwealth Government are used to finance the Commonwealth's own-purpose policy programs and are also distributed to other levels of government, principally the States and Territories, as grants. The distributions are based on principles applied by the Commonwealth Grants Commission. Table 27.13 shows details of grants to States/Territories and local governments classified by purpose.

**27.13 COMMONWEALTH GRANTS, By Purpose and State/Territory—1997-98**

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
Purpose classification	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
General public services	143	99	61	42	37	11	1	1	395
Public order and safety	71	47	21	10	19	7	3	4	182
Education									
Primary and secondary education	1 248	957	670	291	376	92	41	78	3 753
Tertiary education	1 428	1 179	787	379	427	109	37	53	4 399
Other	34	10	27	11	22	3	26	1	134
Total	2 710	2 145	1 484	681	826	203	103	132	8 284
Health									
Hospital and other institutional services	1 612	1 120	939	507	529	147	88	84	5 026
Other	167	116	92	66	45	13	8	12	519
Total	1 780	1 236	1 030	573	574	161	95	96	5 545
Social security and welfare	442	370	220	144	117	48	12	15	1 368
Housing and community amenities	323	215	66	61	104	39	43	22	873
Recreation and culture	4	0	8	1	1	7	0	0	21
Agriculture, forestry, fishing and hunting	55	46	50	23	15	30	8	0	227
Transport and communications	448	183	258	125	134	50	41	15	1 254
Other economic affairs	8	5	6	3	2	6	0	1	31
Other purposes	4 950	3 729	3 365	1 622	1 846	711	1 018	308	17 549
<b>Total</b>	<b>10 934</b>	<b>8 076</b>	<b>6 568</b>	<b>3 285</b>	<b>3 675</b>	<b>1 272</b>	<b>1 325</b>	<b>595</b>	<b>35 730</b>

Source: Unpublished data, Government Finance Statistics.

## State/Territory government finance

State/Territory Governments perform the full range of government functions, other than those the Constitution deems the exclusive domain of the Commonwealth. The functions mainly administered by State/Territory Governments include public order, health, education, administration, transport and maintenance of infrastructure. The revenue base of State/Territory Governments is narrower

than that of the Commonwealth and consists of taxes on property, on employers' payrolls, and on provision and use of goods and services. This revenue base is supplemented by grants from the Commonwealth. Tables 27.14, 27.15 and 27.16 summarise the economic transactions of the general government, public financial, and public non-financial corporations sectors of all State and Territory Governments combined. Table 27.17 presents consolidated outlays by purpose for all State and Territory Governments combined.

### 27.14 STATE AND TERRITORY GOVERNMENTS, General Government

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Gross expenditure on goods and services	42 105	43 707	45 614	48 519	51 518	55 889
Less sales of goods and services(a)	5 225	5 756	6 335	7 018	7 318	8 513
Equals final consumption expenditure	36 879	37 951	39 279	41 501	44 200	47 376
Interest payments	6 456	6 332	6 047	5 711	4 710	4 501
Subsidies to public non-financial corporations	2 612	2 572	2 271	2 061	2 921	3 122
Grants to non-profit institutions	3 652	4 147	4 506	4 783	5 444	6 661
Grants to local governments	1 318	1 343	1 376	1 471	1 499	1 491
Other transfer payments	3 258	1 912	1 807	1 863	1 862	1 884
<i>Total</i>	54 175	54 257	55 286	57 391	60 636	65 034
Capital						
Expenditure on new fixed assets	5 870	5 550	5 931	6 167	6 874	7 319
Plus expenditure on second-hand assets (net)(b)	-495	-403	-214	-6 927	-735	-962
Equals gross fixed capital expenditure	5 375	5 147	5 716	-760	6 138	6 357
Expenditure on land and intangible assets (net)(b)	-386	-455	-507	-2 074	-93	-472
Grants	2 391	2 401	2 234	10 325	2 048	1 883
Other	356	323	337	374	427	533
<i>Total</i>	7 736	7 415	7 781	7 865	8 521	8 301
<b>Total</b>	<b>61 912</b>	<b>61 672</b>	<b>63 066</b>	<b>65 256</b>	<b>69 156</b>	<b>73 336</b>
<b>REVENUE</b>						
Taxes	22 989	25 611	26 877	29 016	31 255	32 588
Interest from other corporations	1 750	1 666	1 897	2 047	2 179	2 859
Grants received	30 235	28 502	29 241	30 557	31 196	31 791
Dividends received	1 811	2 581	2 511	2 602	3 457	3 436
Other	2 289	2 387	2 550	3 512	4 423	4 531
<b>Total</b>	<b>59 073</b>	<b>60 746</b>	<b>63 075</b>	<b>67 734</b>	<b>72 510</b>	<b>75 205</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowing and advances received (net)	3 262	-321	-1 142	-9 606	-5 630	-4 120
Other financing transactions (net)	-1 629	-996	-445	-338	-1 960	-3 495
Less net advances paid	1 206	2 243	1 579	7 467	4 236	5 745
<i>Total financing</i>	2 838	926	-9	-2 478	-3 354	-1 870
Less increase in provisions (net)	3	25	39	8	12	11
<b>Equals deficit (+) or surplus (-)</b>	<b>2 842</b>	<b>952</b>	<b>-47</b>	<b>-2 486</b>	<b>-3 365</b>	<b>-1 881</b>
Of which						
Current deficit(c)	152	-2 767	-4 785	-7 402	-9 270	-7 796
Capital deficit(d)	2 690	3 719	4 738	4 916	5 904	5 914

(a) This item provides an indication of the extent of government charges levied. The charges (excluding inter-agency charges) are offset against gross expenditure in calculating final consumption expenditure and mainly comprise sales to the private sector. (b) Due to the transfer of roads to the local government sector in 1995–96. (c) Current outlays minus current revenues and current grants received less increase in provisions. (d) Capital outlays less capital revenues and capital grants received.

Source: Unpublished data, Government Finance Statistics.



**27.15 STATE AND TERRITORY GOVERNMENTS, Public Non-Financial Corporations**

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Interest payments	4 718	4 118	4 108	3 889	3 498	3 055
Dividends paid	1 170	1 984	2 215	2 123	2 809	2 814
Other transfer payments	775	746	864	2 223	2 633	1 959
<i>Total</i>	6 663	6 847	7 187	8 235	8 940	7 828
Capital						
Expenditure on new fixed assets	6 697	7 156	7 126	6 637	6 671	6 654
Plus expenditure on second-hand assets (net)	-1 192	-1 383	-585	-891	-2 482	-3 001
Equals gross fixed capital expenditure	5 505	5 773	6 541	5 746	4 189	3 653
Expenditure on land and intangible assets (net)	53	-265	-172	-97	505	-128
Other	135	32	-77	111	410	630
<i>Total</i>	5 694	5 540	6 292	5 760	5 104	4 156
<b>Total</b>	<b>12 358</b>	<b>12 388</b>	<b>13 480</b>	<b>13 995</b>	<b>14 044</b>	<b>11 983</b>
<b>REVENUE</b>						
Sales of goods and services	33 288	39 317	41 312	41 662	38 691	37 535
Plus subsidies received	2 440	2 494	2 164	2 118	2 877	2 936
Less operating expenditure	28 691	34 140	36 633	37 388	34 101	33 266
Equals net operating surplus	7 037	7 671	6 843	6 392	7 467	7 204
Interest received from other sectors	464	334	470	536	611	497
Capital grants received	1 983	2 118	1 965	1 894	2 080	1 377
Other	545	711	940	581	530	559
<b>Total</b>	<b>10 029</b>	<b>10 833</b>	<b>10 219</b>	<b>9 404</b>	<b>10 688</b>	<b>9 638</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowings received (net)	-1 330	-1 897	-1 462	-4 411	-1 762	-534
Advances received (net)	-133	-250	-172	-5 532	-3 956	-3 941
Other financing transactions (net)	3 792	3 701	4 895	14 534	9 075	6 821
<i>Total financing</i>	2 329	1 554	3 261	4 591	3 356	2 346
Less increase in provisions (net)	3 779	3 750	4 680	5 131	3 984	4 089
<b>Equals deficit (+) or surplus (-)</b>	<b>-1 450</b>	<b>-2 196</b>	<b>-1 419</b>	<b>-540</b>	<b>-628</b>	<b>-1 743</b>
Of which						
Current deficit	-4 640	-4 971	-4 868	-3 866	-3 161	-4 034
Capital deficit	3 190	2 775	3 449	3 327	2 533	2 290

Source: Unpublished data, Government Finance Statistics.

**27.16 STATE AND TERRITORY GOVERNMENTS, Public Financial Corporations**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Interest payments	12 084	12 200	11 881	10 647	8 580	8 154
Dividends paid	702	788	477	709	519	310
Other transfer payments	192	193	56	138	142	167
<i>Total</i>	12 978	13 181	12 414	11 495	9 241	8 631
Capital						
Gross fixed capital expenditure	212	265	-19	-628	-321	30
Expenditure on land and intangible assets (net)	14	-58	-18	-61	-8	14
Other	1	-3	-1	0	-1	4
<i>Total</i>	227	204	-38	-689	-330	49
<b>Total</b>	<b>13 206</b>	<b>13 384</b>	<b>12 376</b>	<b>10 806</b>	<b>8 911</b>	<b>8 680</b>
<b>REVENUE</b>						
Sales of goods and services	4 321	5 158	4 685	4 943	4 398	3 855
Plus subsidies received	202	232	108	157	160	194
Less operating expenditure	5 246	5 951	5 723	6 022	5 722	4 937
Equals net operating surplus	-723	-562	-930	-922	-1 164	-887
Interest received from other sectors	14 202	14 714	13 792	12 393	10 152	9 196
Other	292	300	218	322	268	256
<b>Total</b>	<b>13 771</b>	<b>14 452</b>	<b>13 079</b>	<b>11 793</b>	<b>9 256</b>	<b>8 565</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowings received (net)	4 080	-4 270	706	-4 679	-3 020	429
Advances received (net)	644	-1 111	-37	-652	-250	-436
Other financing transactions (net)	-5 289	4 313	-1 372	4 344	2 925	122
<i>Total financing</i>	-565	-1 068	-703	-987	-345	115
Less increase in provisions (net)	701	365	74	569	94	246
<b>Equals deficit (+) or surplus (-)</b>	<b>-1 267</b>	<b>-1 433</b>	<b>-778</b>	<b>-1 557</b>	<b>-439</b>	<b>-131</b>
Of which						
Current deficit	-1 492	-1 618	-718	-842	-87	-147
Capital deficit	226	185	-60	-715	-352	17

Source: Unpublished data, Government Finance Statistics.

**27.17 TOTAL OUTLAYS OF STATE AND TERRITORY GOVERNMENTS,  
Consolidated Government by Purpose**

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Purpose classification	\$m	\$m	\$m	\$m	\$m	\$m
General public services	4 230	4 951	4 733	4 628	4 951	5 549
Public order and safety	4 613	4 729	5 107	5 560	6 217	6 429
Education						
Primary and secondary	11 317	11 507	11 799	12 454	13 377	14 660
University	1 720	202	163	195	216	178
Technical and Further Education	2 117	2 136	2 227	2 303	2 412	2 416
Other tertiary	26	5	25	23	22	173
Other	1 766	1 719	1 788	1 882	1 986	1 471
Total	16 946	15 570	16 003	16 857	18 013	18 898
Health						
Acute care institutions	9 436	9 504	9 686	10 289	10 803	11 888
Other health institutions	686	705	724	744	858	840
Community health services	929	939	1 301	1 612	1 910	1 883
Pharmaceuticals	2	1	1	11	12	1
Other	939	1 077	1 248	1 186	1 146	1 555
Total	11 992	12 226	12 960	13 841	14 729	16 167
Social security and welfare						
Social security	512	605	663	649	715	535
Welfare services	2 460	2 571	2 710	2 918	3 162	3 738
Other	73	96	104	118	124	239
Total	3 045	3 272	3 477	3 685	4 002	4 512
Housing and community amenities						
Housing and community development	1 744	1 433	2 017	1 714	1 414	1 402
Water supply	660	556	567	485	988	1 458
Sanitation and protection of the environment	1 032	939	1 158	1 063	881	643
Other	56	38	24	66	8	10
Total	3 492	2 966	3 767	3 328	3 291	3 513
Recreation and culture						
Recreational facilities and services	1 168	1 007	746	1 194	1 491	1 877
Cultural facilities and services	557	615	773	796	809	1 085
Broadcasting and film production	10	12	15	15	27	23
Other	11	10	4	3	8	-4
Total	1 746	1 643	1 537	2 008	2 335	2 981
Fuel and energy	1 602	1 388	2 633	2 487	1 597	1 561
Agriculture, forestry, and fishing	1 518	1 389	1 127	1 442	1 448	1 546
Mining, manufacturing and construction	82	222	289	276	279	274
Transport and communications						
Road transport	4 574	4 275	4 263	4 515	4 786	4 934
Water transport	186	324	210	129	98	235
Rail and multi-mode transport	2 619	3 330	2 997	3 383	3 941	3 738
Air transport	6	1	9	36	53	15
Communications and other transport	9	3	5	7	-54	-1 164
Total	7 394	7 934	7 484	8 069	8 825	7 758
Other economic affairs	1 741	1 659	1 620	1 137	1 142	1 293
Public debt transactions	15 980	15 212	13 446	11 119	9 097	8 789
Other	1 325	1 255	1 147	943	1 141	1 433
<b>Total</b>	<b>75 709</b>	<b>74 415</b>	<b>75 331</b>	<b>75 381</b>	<b>77 065</b>	<b>80 702</b>

Source: Unpublished data, Government Finance Statistics.

## Local government finance

Local government authorities govern areas typically described as cities, towns, shires, boroughs, municipalities and district councils. Although the range of functions undertaken by local governments varies between the different jurisdictions, their powers and responsibilities are generally similar and cover such matters as:

- the construction and maintenance of roads, streets and bridges;
- water, sewerage and drainage systems;
- health and sanitary services;
- the regulation of building standards; and
- the administration of regulations relating to items such as slaughtering, weights and measures, and registration of dogs.

Local governments also provide transport facilities, hospitals, charitable institutions, recreation grounds, parks, swimming pools, libraries, museums and other business undertakings.

Local governments' own-source revenue is derived mainly from property taxes. They also rely on grants from the Commonwealth and their parent State/Territory Governments. The Australian Capital Territory has no separate local government.

Table 27.18 shows the economic transactions and outlays for the consolidated public sector activities of all local governments in Australia.

Table 27.19 shows consolidated outlays of local governments classified by purpose.

**27.18 LOCAL GOVERNMENT, Consolidated Public Sector**

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Final consumption expenditure	4 308	4 283	4 442	5 517	5 700	5 701
Interest payments	832	641	578	575	558	479
Subsidies paid to enterprises	5	5	6	0	0	0
Grants paid	7	7	11	13	14	16
Other	123	68	78	82	98	111
Total	5 275	5 003	5 115	6 187	6 370	6 307
Capital						
Gross fixed capital expenditure(a)	2 981	2 661	2 781	9 053	3 057	3 356
Expenditure on land and intangible assets (net)(a)	88	63	95	1 849	-18	52
Grants paid	103	3	10	7	3	2
Other	3	3	-1	0	0	0
Total	3 175	2 731	2 886	10 909	3 042	3 410
<b>Total</b>	<b>8 450</b>	<b>7 735</b>	<b>8 000</b>	<b>17 096</b>	<b>9 412</b>	<b>9 717</b>
<b>REVENUE</b>						
Taxes	4 641	4 784	4 858	5 134	5 403	5 683
Net operating surplus of public enterprises	517	550	522	436	439	435
Interest received	419	362	390	443	410	360
Other	2 556	2 632	2 712	11 340	3 262	3 337
<b>Total</b>	<b>8 132</b>	<b>8 329</b>	<b>8 483</b>	<b>17 352</b>	<b>9 515</b>	<b>9 815</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowing and advances received (net)	-208	-320	-324	-541	-203	-68
Other financing transactions (net)	509	-275	-313	-409	-153	-268
Less net advances paid	17	0	155	694	254	237
Total financing	317	-594	-482	-256	-103	-98
Less increase in provisions (net)	364	85	84	192	256	290
<b>Equals deficit (+) or surplus (-)</b>	<b>-47</b>	<b>-679</b>	<b>-566</b>	<b>-448</b>	<b>-359</b>	<b>-388</b>
Of which						
Current deficit(b)	-2 282	-2 498	-2 567	-2 281	-2 403	-2 608
Capital deficit(c)	2 235	1 819	2 001	1 833	2 044	2 220

(a) Due to the transfer of roads from the State Government sector in 1995-96. (b) Current outlays minus current revenues and current grants received less increase in provisions. (c) Capital outlays less capital revenues and capital grants received.

Source: Unpublished data, Government Finance Statistics.

**27.19 TOTAL OUTLAYS OF LOCAL GOVERNMENTS, Consolidated Government by Purpose**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
Purpose classification	\$m	\$m	\$m	\$m	\$m	\$m
General public services	1 495	1 490	1 416	1 434	1 335	1 386
Public order and safety	99	156	190	226	248	259
Education	45	31	34	36	39	42
Health	153	175	192	206	209	217
Social security and welfare	409	450	485	570	619	648
Housing and community amenities						
Housing and community development	157	207	244	297	304	313
Water supply	213	213	236	221	191	210
Sanitation and protection of the environment	664	573	769	1 015	1 105	1 230
Other community amenities	267	228	260	265	293	310
<i>Total</i>	1 300	1 222	1 508	1 799	1 893	2 063
Recreation and culture						
Recreational facilities and services	818	968	985	1 097	1 131	1 175
Cultural facilities and services	269	364	421	509	582	564
Broadcasting and film production	0	0	0	0	0	0
Other	251	99	152	121	108	138
<i>Total</i>	1 338	1 432	1 558	1 727	1 820	1 877
Fuel and energy(a)	393	25	6	–4	–63	2
Agriculture, forestry and fishing	16	12	14	15	14	13
Mining, manufacturing and construction	9	10	37	72	79	74
Transport and communications(b)	2 114	2 048	1 957	10 200	2 379	2 403
Other economic affairs	58	9	–41	81	77	81
Public debt transactions	832	641	578	575	558	479
Other purposes	189	33	66	158	205	175
<b>Total</b>	<b>8 450</b>	<b>7 735</b>	<b>8 000</b>	<b>17 096</b>	<b>9 412</b>	<b>9 717</b>

(a) Negative outlays in this category in 1995–96 and 1996–97 are due to electricity asset sales during that year. (b) The large outlay value in 1995–96 is due to the transfer of roads from the State Government sector to the local government sector.

Source: *Unpublished data, Government Finance Statistics.*

## Universities

As indicated earlier, universities are classified to a separate 'multi-jurisdictional' sector within the general government sector for the Commonwealth and States/Territories combined.

Table 27.20 summarises the economic transactions of the multi-jurisdictional sector, which currently contains only the universities.

### 27.20 UNIVERSITIES, General Government

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Economic transactions	\$m	\$m	\$m	\$m	\$m	\$m
<b>OUTLAYS</b>						
Current						
Final consumption expenditure	3 494	3 569	3 855	3 808	4 048	4 197
Interest payments	9	10	13	18	21	23
Subsidies paid to enterprises	—	—	—	—	—	—
Grants paid	1	3	9	13	4	11
Other transfer payments	220	236	243	266	283	308
Total	3 724	3 819	4 120	4 101	4 355	4 540
Capital						
Gross fixed capital expenditure	792	875	854	862	901	842
Expenditure on land and intangible assets (net)	-4	18	45	14	35	6
Grants paid	2	—	—	1	1	1
Other	9	4	-9	-2	-2	-5
Total	799	898	890	874	935	845
<b>Total</b>	<b>4 524</b>	<b>4 717</b>	<b>5 010</b>	<b>4 978</b>	<b>5 290</b>	<b>5 384</b>
<b>REVENUE</b>						
Interest received	243	260	226	285	256	254
Other	4 388	4 725	4 833	5 015	5 067	5 131
<b>Total</b>	<b>4 631</b>	<b>4 985</b>	<b>5 059</b>	<b>5 300</b>	<b>5 322</b>	<b>5 385</b>
<b>FINANCING AND DEFICIT MEASURES</b>						
Borrowing and advances received (net)	36	13	51	39	72	8
Other financing transactions (net)	-136	-284	-102	-370	-103	-10
Less net advances paid	8	3	3	10	1	2
Total financing	-107	-268	-49	-321	-32	-1
Less increase in provisions (net)	—	—	—	—	—	—
<b>Equals deficit or surplus (-)</b>	<b>-107</b>	<b>-268</b>	<b>-49</b>	<b>-321</b>	<b>-32</b>	<b>-1</b>
Of which						
Current deficit	-537	-975	-882	-1 131	-880	-763
Capital deficit	429	707	834	809	848	762

Source: Government Finance Statistics, Australia, 1997-98 (5512.0).

## Financial assets and liabilities

As well as providing transactions (flows) statistics, the GFS system provides levels (stocks) data on financial assets and liabilities of the Australian public sector. The statistics encompass deposits made or held by Australian governments, and all lending and borrowing they have undertaken, whether for policy purposes (termed 'advances') or for liquidity management and investment (other lending/borrowing). Briefly defined:

- Financial assets cover the financial claims of the public sector on other organisations (including other government authorities and overseas organisations) and households. However, the financial assets shown below cover only 'debt-related' financial assets and do

not include shares and other equity assets, and financial assets related to trade credit and accounts receivable. Financial assets are shown before deduction of provisions for doubtful debts.

- Liabilities include all financial claims on the public sector except those related to trade credit and other accounts payable. Liabilities include lease liabilities under finance leases or similar arrangements and repayable amounts held as security deposits. Monies held on trust (excluding employee superannuation contributions) are included both as assets and as liabilities of government. Coin on issue is not included as a liability of government.

Table 27.21 summarises the financial assets, liabilities and net financial position of the public sector for all levels of government.

**27.21 FINANCIAL ASSETS AND LIABILITIES FOR ALL LEVELS OF GOVERNMENT—At 30 June**

	1993	1994	1995	1996	1997	1998
	\$m	\$m	\$m	\$m	\$m	\$m
<b>COMMONWEALTH GOVERNMENT</b>						
General government						
Gross debt	79 401	94 203	107 501	115 374	116 120	99 499
Total cash, deposits and lending	24 183	23 980	24 010	19 543	19 839	16 513
Net debt	55 218	70 223	83 492	95 831	96 281	82 935
Unfunded employee entitlements	60 270	69 187	67 464	67 352	68 567	70 525
Public non-financial corporations						
Gross debt	18 825	15 712	15 572	11 293	11 861	11 688
Total cash, deposits and lending	5 093	4 298	6 074	3 545	3 500	3 216
Net debt	13 732	11 413	9 498	7 748	8 361	8 472
Unfunded employee entitlements	770	264	695	685	600	655
Public financial corporations						
Gross debt	86 473	87 112	86 765	97 999	44 934	37 980
Total cash, deposits, lending and international reserves	98 831	99 116	104 163	109 718	57 958	55 367
Net debt	-12 358	-12 004	-14 399	-11 719	-13 024	-17 387
Unfunded employee entitlements	536	502	874	839	165	168
Consolidated government						
Gross debt	161 154	176 236	190 638	204 154	147 275	131 119
Total cash, deposits, lending and international reserves	104 562	106 604	112 047	112 294	55 658	57 099
Net debt	56 592	69 632	78 591	91 860	91 617	74 020
Unfunded employee entitlements	61 576	69 953	69 033	68 877	69 332	71 348

...continued



**27.21 FINANCIAL ASSETS AND LIABILITIES FOR ALL LEVELS OF GOVERNMENT—  
At 30 June—continued**

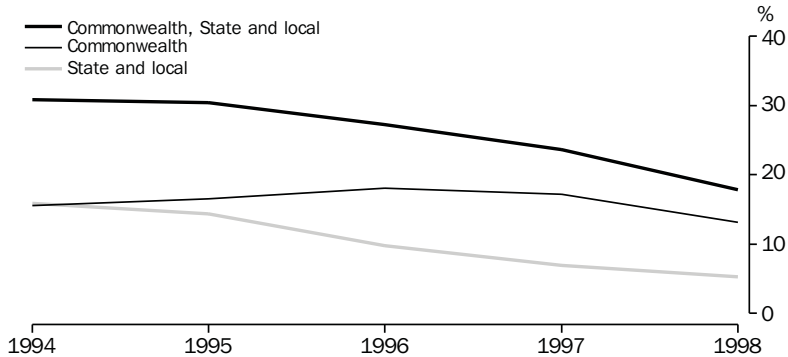
	1993	1994	1995	1996	1997	1998
	\$m	\$m	\$m	\$m	\$m	\$m
<b>STATE AND TERRITORY GOVERNMENTS</b>						
General government						
Gross debt	69 888	69 112	64 991	56 132	50 869	48 321
Total cash, deposits and lending	29 038	30 218	29 508	31 386	31 728	33 213
Net debt	40 849	38 894	6 482	24 746	19 141	15 108
Unfunded employee entitlements	50 861	47 671	20 692	55 027	55 240	55 999
Public non-financial corporations						
Gross debt	46 467	43 583	43 966	39 596	38 533	36 264
Total cash, deposits and lending	7 321	6 975	6 982	7 210	9 146	9 365
Net debt	39 147	36 608	36 984	32 387	29 387	26 899
Unfunded employee entitlements	6 624	6 342	6 463	5 679	4 533	4 169
Public financial corporations						
Gross debt	n.a.	160 108	140 293	111 472	101 031	96 782
Total cash, deposits, lending and international reserves	n.a.	165 816	145 998	119 343	113 384	109 864
Net debt	n.a.	-5 708	-5 705	-7 871	-12 353	-13 083
Unfunded employee entitlements	n.a.	278	196	76	252	280
Consolidated government						
Gross debt	n.a.	164 129	138 310	106 446	101 494	97 502
Total cash, deposits, lending and international reserves	n.a.	94 336	71 547	57 184	65 318	68 577
Net debt	n.a.	69 793	66 763	49 262	36 176	28 924
Unfunded employee entitlements	n.a.	54 291	57 350	60 781	60 025	60 448
<b>LOCAL GOVERNMENTS</b>						
Consolidated government						
Gross debt	7 510	6 806	6 462	6 065	6 159	6 246
Total cash, deposits and lending	4 339	5 007	4 921	5 891	5 604	5 494
Net debt	3 171	1 799	1 542	174	554	752
Unfunded employee entitlements	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>UNIVERSITIES</b>						
General government						
Gross debt	276	400	372	457	489	507
Total cash, deposits, lending and international reserves	2 294	3 077	2 934	3 313	3 291	3 692
Net debt	-2 017	-2 677	-2 562	-2 856	-2 802	-3 185
Unfunded employee entitlements	2 333	2 500	2 507	2 543	2 621	2 382
<b>COMMONWEALTH, STATE, TERRITORY AND LOCAL GOVERNMENTS</b>						
Consolidated government						
Gross debt	n.a.	321 983	312 573	299 775	240 780	216 071
Total cash, deposits, lending and international reserves	n.a.	183 437	168 240	161 336	115 234	115 560
Net debt	n.a.	138 546	144 334	138 440	125 545	100 511
Unfunded employee entitlements	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Government Finance Statistics, Australia, (5512.0).

Graph 27.22 shows the movements in net debt as a percentage of GDP for the Commonwealth Government; State/Territory Governments and local governments combined; and all governments combined, from 30 June 1994 to 30 June 1998. Over this period, State/Territory

and local government net debt has decreased substantially as a percentage of GDP, while Commonwealth net debt has decreased since 30 June 1996 as a percentage of GDP, leading to a decrease in total government net debt as a percentage of GDP over the period.

**27.22 NET DEBT BY LEVEL OF GOVERNMENT, Percentage of GDP**



Source: Government Finance Statistics, Australia, 1997–98 (5512.0).

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## Introduction

Prices are a key factor in the operation of an economy. Price indexes, which provide summary measures of the movements in various categories of prices, are used extensively to analyse and monitor price behaviour, and to adjust government payments such as pensions.

This chapter provides an outline of the major price indexes, their history, and their underlying concepts and methodology. More detailed information is contained in the source publications referred to throughout the chapter and in the bibliography.

## Consumer Price Index (CPI)

The description of the CPI commonly adopted by users is in terms of its perceived uses; hence the frequent references to the CPI as a measure of inflation, a measure of changes in purchasing power, or a measure of changes in the cost of living. In practice, the CPI is a measure of changes, over time, in prices of a constant basket of goods and services acquired by metropolitan households in Australia. As such, the CPI has been designed as a general measure of price inflation for the household sector in Australia.

The simplest way of thinking about the CPI is to imagine a basket of goods and services of the kind acquired by Australian households. As prices vary, the total price of this basket will also vary. The CPI is simply a measure of the changes in the price of this basket as the prices of items in it change.

The price of the CPI basket in the base period is assigned a value of 100.0 and the prices in other periods are expressed as percentages of the price in the base period. For example, if the price of the basket had increased by 35% since the base year, then the index would read 135.0. Similarly, if the price had fallen by 5% since the base year, the index would stand at 95.0.

For practical reasons, the CPI basket cannot include every item bought by households, but it does include all the important kinds of items. It is not necessary to include every item that people buy since many related items are subject to similar price changes. The idea is to select representative items so that the index reflects price changes for a much wider range of goods and services than is actually priced.

The total basket is divided into the following eight major commodity groups: food; clothing; housing; household equipment and operation; transportation; alcohol and tobacco; health and personal care; and recreation and education. These groups are divided in turn into 33 subgroups, and the subgroups into 101 expenditure classes. These numbers apply to CPIs calculated and published from the September quarter 1998 onwards. For more information see *A Guide to the Consumer Price Index* (6440.0).

In addition to the aggregate All groups index, indexes are also compiled and published for each of the groups, subgroups and expenditure classes for each State capital city, Darwin and Canberra. National indexes are constructed as the weighted average of the indexes compiled for each of the eight capital cities.

The CPI is the latest of a number of retail price indexes which have been constructed for various purposes by the ABS. The history of retail price indexes in Australia is published in *Year Book Australia, 1995*.

## Index population

The CPI measures price changes relating to the spending pattern of metropolitan private households. This group is termed the CPI population group. 'Metropolitan' is defined as the State capital cities, together with Darwin and Canberra.

This population group differs from that applying to CPIs calculated and published prior to the September quarter 1998. For more information see the article *Outcomes of the 13th Series Australian Consumer Price Index Review* in *Year Book Australia, 1999*.

## Conceptual basis

The CPI is a quarterly measure of the change in average price levels. It provides a method of comparing the average price level for a quarter with the average price level of the reference base year or changes in the average price level from one quarter to any other quarter.

In measuring price changes, the CPI aims to measure only pure price changes (i.e. it is concerned with isolating and measuring only that element of price change which is not brought about by any change to either the quantity or the quality of the goods or services concerned). In other words it aims to measure, each quarter, the change in the cost of acquiring an identical basket of goods and services. This involves evaluating

changes in the quality of goods and services included in the index and removing the effects of such changes from the prices used to construct the index.

The CPI is also a measure of changes in the prices actually paid by consumers for the goods and services they buy. It is not concerned with nominal, recommended or list prices (unless they are the prices consumers actually pay).

The CPI basket includes goods and services ranging from steak to motor cars and from dental fillings to restaurant meals. The items are chosen not only because they represent the spending habits of the CPI population group, but also because the items are those for which the prices can be associated with identifiable and specific commodities and services. While government taxes and charges which are associated with the use of specific goods and services (such as excise duty, sales taxes, local government rates, etc.) are included, income taxes and the income-related Medicare levy are excluded because they cannot be clearly associated with the purchase or use of a specific quantity of any good or service.

Items are not excluded from the CPI basket on the basis of moral or social judgements. For example, some people may regard the use of tobacco and alcohol as socially undesirable, but these commodities are included in the CPI basket because they are significant items of household expenditure and their prices can be accurately measured. However, to assist in understanding the effect that major item groups have on the CPI, the ABS publishes a range of supplementary indexes which exclude, in turn, each of the eight major commodity groups. These supplementary indexes can also be used in their own right for evaluating price changes or for indexation purposes.

### Periodic reviews of the CPI

Like any other long-standing and important statistical series, the CPI is reviewed from time to time to ensure that it continues to be relevant to current conditions. Over time, household

spending habits change, as does the range of available goods and services. The CPI needs to be updated to take account of these changes. These reviews also provide an opportunity to reassess the scope and coverage of the index and other methodological issues.

Since its inception in its current form in 1960, reviews of the CPI have usually been carried out at about five-yearly intervals. Following each review, which involves revising the list of items and their weights, the new series are linked to the old to form continuous series. This linking is carried out in such a way that the resulting continuous series reflects only price changes and not differences in the prices of the old and new baskets.

The current (13th series) CPI reflects expenditure patterns derived mainly from the 1993–94 Household Expenditure Survey and has a reference base of 1989–90. It was introduced in the September quarter 1998.

In addition to revising weights to reflect new expenditure patterns, the 13th Series CPI review, conducted in 1997, also considered a number of conceptual and methodological issues, including the principal purpose, the population coverage and frequency of the CPI. For more information see *Information Paper: Outcome of the 13th Series Australian Consumer Price Index Review* (6453.0), *Information Paper: Introduction of the 13th Series Australian Consumer Price Index* (6454.0) and *Year Book Australia*, 1999.

### Weighting pattern

The composition of the CPI basket is based on the pattern of household expenditure in the 'weighting base period', which is 1993–94 for the 13th series CPI. Measures of expenditure are obtained primarily from the ABS's Household Expenditure Survey (HES). The HES data, modified for known instances of underreporting (the most notable being for alcohol and tobacco), are then used to derive a weight for each of the 101 expenditure classes. The weights for the 13th series groups and subgroups as at June quarter 1998 prices are shown in table 28.1.

### 28.1 CONSUMER PRICE INDEX, Weighted Average of Capital Cities(a)(b)

Groups and subgroups	Weight in CPI basket
<b>Food</b>	
Dairy and related products	1.47
Cereal products	2.44
Meat and seafoods	2.83
Fresh fruit and vegetables	2.27
Processed fruit and vegetables	0.75
Soft drinks, ice cream and confectionery	2.42
Meals out and take away foods	5.25
Other food	1.75
<b>Total</b>	<b>19.19</b>
<b>Clothing</b>	
Men's clothing	1.19
Women's clothing	2.35
Children's and infants' clothing	0.53
Footwear	0.87
Clothing accessories, supplies and services	0.78
<b>Total</b>	<b>5.72</b>
<b>Housing</b>	
Rents	5.80
Utilities	3.56
Other housing	9.99
<b>Total</b>	<b>19.35</b>
<b>Household equipment and operation</b>	
Furniture and floor coverings	3.58
Household textiles	0.49
Household appliances, utensils and tools	2.77
Household supplies	2.46
Household services	1.23
Postal and communication services	2.03
<b>Total</b>	<b>12.56</b>
<b>Transportation</b>	
Private motoring	13.22
Urban transport fares	0.91
<b>Total</b>	<b>14.13</b>
<b>Tobacco and alcohol</b>	
Alcoholic drinks	5.06
Cigarettes and tobacco	3.08
<b>Total</b>	<b>8.14</b>
<b>Health and personal care</b>	
Health services	3.80
Personal care products	2.41
Hairdressing and personal care services	0.76
<b>Total</b>	<b>6.98</b>
<b>Recreation and education</b>	
Books, newspapers, magazines and stationery	1.91
Recreation	5.80
Holiday travel and accommodation	3.89
Education and child care	2.32
<b>Total</b>	<b>13.93</b>
<b>Total All groups</b>	<b>100.00</b>

(a) Percentages may not add due to rounding. (b) Weights shown are those applicable from the September quarter 1998 onwards.

Source: Information Paper: Introduction of the 13th Series Australian Consumer Price Index (6454.0).

### Price collection

Since the CPI is designed to measure the impact of changing prices on metropolitan private households, information about prices is collected in the kinds of retail outlets or other places where these households normally purchase goods and services. Prices are collected from many sources, including supermarkets, department stores, footwear stores, restaurants, motor vehicle dealers and service stations, dental surgeries, hotels and clubs, schools, hairdressers, travel agents and airlines, bus operators, electricians and plumbers. Items like rail fares, electricity and gas charges, telephone charges and local government rates are collected from the authorities concerned. Information on rents is obtained from property management companies and from government housing commissions. In total, around 100,000 separate price quotations are collected each quarter.

The collection of prices in each capital city is carried out by trained ABS field staff.

The prices used in the CPI are those that any member of the public would have to pay to purchase the specified good or service, including any associated sales or excise taxes. Sale prices, discount prices and 'specials' are reflected in the CPI so long as the items concerned are of normal quality (that is, not damaged or shop-soiled), and are offered for sale in reasonable quantities. To ensure that the price movements reflect the buying experience of the bulk of the metropolitan population, the brands and the varieties of the items which are priced are generally those which sell in greatest volume.

### Price movements by city

Table 28.2 presents All groups index numbers for each of the eight capital cities and for the weighted average of the eight capital cities, together with percentage changes.

The capital city indexes measure price movements over time in each city individually. They do not measure differences in price levels between cities. For example, the index for Adelaide in 1998–99 of 123.2, compared with the corresponding index for Sydney of 122.5, does not mean that prices in Adelaide are higher than those in Sydney. It simply means that, since the base period (1989–90), prices in Adelaide have increased by a greater percentage than those in Sydney (23.2% compared with 22.5%).



**28.2 CONSUMER PRICE INDEX, All Groups Index Numbers(a)(b)**

Year	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Canberra	Darwin	Weighted average of eight capital cities
INDEX NO.(c)									
1992-93	107.7	108.9	108.5	111.2	106.2	108.5	109.5	109.5	<b>108.4</b>
1993-94	109.2	111.1	110.6	113.4	108.5	111.7	111.4	111.5	<b>110.4</b>
1994-95	113.0	114.1	114.7	116.9	112.3	115.2	115.1	114.7	<b>113.9</b>
1995-96	118.7	118.4	119.1	121.2	116.7	119.6	120.3	119.5	<b>118.7</b>
1996-97	120.4	119.9	121.0	122.3	118.3	121.4	121.2	121.6	<b>120.3</b>
1997-98	120.5	119.8	121.6	121.6	118.0	121.3	120.4	121.3	<b>120.3</b>
1998-99	122.5	120.9	122.9	123.2	120.1	122.5	121.5	122.4	<b>121.8</b>
CHANGE FROM PREVIOUS YEAR (%)									
1992-93	0.9	0.7	1.4	2.1	0.3	1.3	1.6	1.4	<b>1.0</b>
1993-94	1.4	2.0	1.9	2.0	2.2	2.9	1.7	1.8	<b>1.8</b>
1994-95	3.5	2.7	3.7	3.1	3.5	3.1	3.3	2.9	<b>3.2</b>
1995-96	5.0	3.8	3.8	3.7	3.9	3.8	4.5	4.2	<b>4.2</b>
1996-97	1.4	1.3	1.6	0.9	1.4	1.5	0.7	1.8	<b>1.3</b>
1997-98	0.1	-0.1	0.5	-0.6	-0.3	-0.1	-0.7	-0.2	<b>0.0</b>
1998-99	1.7	0.9	1.1	1.3	1.8	1.0	0.9	0.9	<b>1.2</b>

(a) Reference base year 1989-90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities. (c) Index numbers for financial years are calculated as the simple arithmetic averages of the quarterly index numbers.

Source: Consumer Price Index, Australia (6401.0).

**28.3 CONSUMER PRICE INDEX, Group Index Numbers—Weighted Average of Capital Cities(a)**

Year	Food	Clothing	Housing	Household equipment and operation	Transportation	Tobacco and alcohol	Health and personal care	Recreation and education	All groups
INDEX NO.(b)									
1992-93	107.4	107.5	94.6	107.3	111.3	124.4	124.0	109.1	<b>108.4</b>
1993-94	109.4	106.7	94.2	107.8	113.8	133.7	129.0	111.9	<b>110.4</b>
1994-95	112.1	106.7	100.0	109.2	117.5	141.0	135.5	114.6	<b>113.9</b>
1995-96	116.0	107.0	105.9	111.7	122.6	156.1	141.8	117.7	<b>118.7</b>
1996-97	119.7	107.3	101.6	113.5	124.3	161.4	149.1	119.7	<b>120.3</b>
1997-98	121.8	107.4	94.5	113.8	123.5	164.6	153.6	123.6	<b>120.3</b>
1998-99	126.5	106.7	95.8	113.7	122.1	168.7	153.7	126.2	<b>121.8</b>
CHANGE FROM PREVIOUS YEAR (%)									
1992-93	1.5	1.0	-4.3	-0.2	2.3	8.2	2.2	2.1	<b>1.0</b>
1993-94	1.9	-0.7	-0.4	0.5	2.2	7.5	4.0	2.6	<b>1.8</b>
1994-95	2.5	—	6.2	1.3	3.3	5.5	5.0	2.4	<b>3.2</b>
1995-96	3.5	0.3	5.9	2.3	4.3	10.7	4.6	2.7	<b>4.2</b>
1996-97	3.2	0.3	-4.1	1.6	1.4	3.4	5.1	1.7	<b>1.3</b>
1997-98	1.8	0.1	-7.0	0.3	-0.6	2.0	3.0	3.3	<b>0.0</b>
1998-99	3.9	-0.7	1.4	-0.1	-1.1	2.5	0.1	2.1	<b>1.2</b>

(a) Reference base year 1989-90 = 100.0. (b) Index numbers for financial years are calculated as the simple arithmetic averages of the quarterly index numbers.

Source: Consumer Price Index, Australia (6401.0).

## Price movements by broad commodity group

Table 28.3 presents, for the weighted average of the eight capital cities, index numbers for each of the eight major commodity groups and for the All groups, together with percentage changes.

## Long-term price series

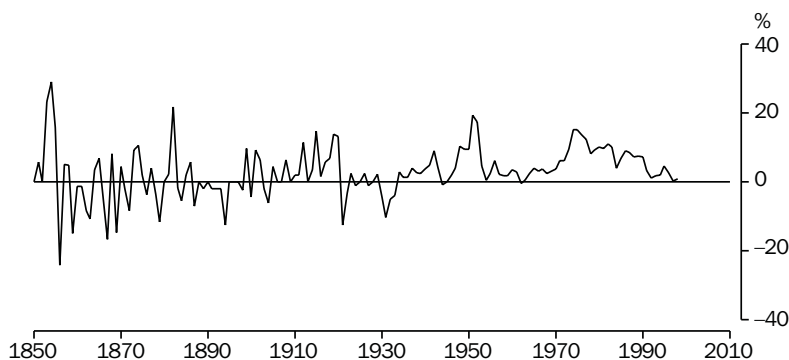
Although the CPI has only been compiled from 1948, an approximate long-term measure of retail price change has been constructed by linking together other selected retail price index series (see graph 28.4 and table 28.5). The index numbers are expressed on a reference base

1945 = 100.0, which was the end of a period of relative price stability during World War II. The successive series linked together to produce this long-term series of index numbers are:

- from 1850 to 1901, Sydney Retail Price Index;
- from 1901 to 1914, the A Series Index;
- from 1914 to 1946–47, the C Series Index;
- from 1946–47 to 1948–49, a combination of the C Series Index (excluding rent) and the housing group of the CPI; and
- from 1948–49 onwards, the CPI.

For more information about these series see *Year Book Australia, 1995* (1301.0).

**28.4 RETAIL PRICE INDEX, Percentage Change from Previous Year**



Source: Unpublished data, Consumer Price Index.

**28.5 RETAIL PRICE INDEX NUMBERS(a)(b)**

Year	Index no.	Year	Index no.	Year	Index no.	Year	Index no.	Year	Index no.	Year	Index no.
1850	53	1875	53	1900	43	1925	88	1950	140	1975	510
1851	56	1876	51	1901	47	1926	90	1951	167	1976	579
1852	56	1877	53	1902	50	1927	89	1952	196	1977	650
1853	69	1878	51	1903	49	1928	89	1953	205	1978	702
1854	89	1879	45	1904	46	1929	91	1954	206	1979	766
1855	103	1880	45	1905	48	1930	87	1955	211	1980	844
1856	78	1881	46	1906	48	1931	78	1956	224	1981	926
1857	82	1882	56	1907	48	1932	74	1957	229	1982	1 028
1858	86	1883	55	1908	51	1933	71	1958	233	1983	1 132
1859	73	1884	52	1909	51	1934	73	1959	237	1984	1 177
1860	72	1885	53	1910	52	1935	74	1960	245	1985	1 257
1861	71	1886	56	1911	53	1936	75	1961	252	1986	1 370
1862	65	1887	52	1912	59	1937	78	1962	251	1987	1 487
1863	58	1888	52	1913	59	1938	80	1963	252	1988	1 594
1864	60	1889	51	1914	61	1939	82	1964	258	1989	1 714
1865	64	1890	51	1915	70	1940	85	1965	268	1990	1 839
1866	60	1891	50	1916	71	1941	89	1966	276	1991	1 898
1867	50	1892	49	1917	75	1942	97	1967	286	1992	1 917
1868	54	1893	48	1918	80	1943	101	1968	293	1993	1 952
1869	46	1894	42	1919	91	1944	100	1969	302	1994	1 989
1870	48	1895	42	1920	103	1945	100	1970	313	1995	2 082
1871	47	1896	42	1921	90	1946	102	1971	332	1996	2 136
1872	43	1897	42	1922	87	1947	106	1972	352	1997	2 141
1873	47	1898	41	1923	89	1948	117	1973	385	1998	2 159
1874	52	1899	45	1924	88	1949	128	1974	443	..	..

(a) Reference base year 1945 = 100.0. (b) The index numbers relate to Sydney from 1850 to 1900; from 1901 to 1980 they relate to the weighted average of six State capital cities; and from 1981 to the weighted average of eight capital cities. Index numbers are for calendar years.

Source: Unpublished data, Consumer Price Index.

## International comparisons

In analysing price movements in Australia, an important consideration is Australia's performance relative to other countries. However, due to the many differences in the structure of the housing sector in different countries and in the way that housing is treated in their CPIs, a simple comparison of All groups (or headline) CPIs is often inappropriate. In order to provide a better basis for international comparisons, the Fourteenth International

Conference of Labour Statisticians adopted a resolution which called for countries to "provide for dissemination at the international level of an index which excludes shelter, in addition to the all items index".

Table 28.6 presents indexes for selected countries on a basis consistent with the above resolution and comparable with the Australian series 'All groups excluding housing'.

**28.6 CONSUMER PRICE INDEX, International Comparisons(a)(b)**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
INDEX NO.							
<b>Australia</b>	<b>111.0</b>	<b>113.5</b>	<b>116.5</b>	<b>121.1</b>	<b>123.9</b>	<b>125.4</b>	<b>126.9</b>
New Zealand(c)	108.7	109.4	110.5	111.9	113.7	114.9	116.9
Hong Kong (SAR of China)	130.8	140.1	151.4	160.8	168.2	175.1	174.0
Indonesia	129.0	137.8	150.3	163.7	174.1	232.7	368.3
Japan	106.8	107.9	107.8	107.3	108.2	112.4	112.4
Republic of Korea	123.5	130.4	138.0	144.4	151.3	162.1	169.0
Singapore	108.1	110.9	114.5	116.0	118.1	119.4	118.5
Taiwan	111.4	114.2	119.1	122.5	125.7	127.2	128.2
Canada	110.8	112.0	113.4	116.0	118.8	120.6	122.0
United States of America	112.1	114.8	118.0	120.9	124.3	125.8	127.2
Germany	110.6	113.7	115.8	117.0	118.2	120.3	120.7
United Kingdom	118.6	122.0	124.8	128.3	131.5	134.6	137.2
CHANGE SINCE PREVIOUS YEAR (%)							
<b>Australia</b>	<b>2.0</b>	<b>2.3</b>	<b>2.6</b>	<b>3.9</b>	<b>2.3</b>	<b>1.2</b>	<b>1.2</b>
New Zealand(c)	2.1	0.6	1.0	1.3	1.6	1.1	1.7
Hong Kong (SAR of China)	7.5	7.1	8.1	6.2	4.6	4.1	–0.6
Indonesia	7.5	6.8	9.1	8.9	6.4	33.7	58.3
Japan	0.8	1.0	–0.1	–0.5	0.8	3.9	0.0
Republic of Korea	4.7	5.6	5.8	4.6	4.8	7.1	4.3
Singapore	1.9	2.6	3.2	1.3	1.8	1.2	–0.8
Taiwan	3.5	2.5	4.3	2.9	2.6	1.2	0.8
Canada	1.8	1.1	1.3	2.3	2.4	1.5	1.2
United States of America	3.1	2.4	2.8	2.5	2.8	1.2	1.1
Germany	3.3	2.8	1.8	1.0	1.0	1.8	0.3
United Kingdom	3.1	2.9	2.3	2.8	2.5	2.4	1.9

(a) Reference base year 1989–90 = 100.0. (b) All groups excluding housing. (c) From March quarter 1994, the statistics for New Zealand refer to 'all groups excluding housing and credit services'.

Source: *Consumer Price Index* (6401.0).

## Producer Price Indexes

The Producer Price Indexes measure changes in prices received, or paid, by producers of commodities. Specifically, in Australia they relate to prices for goods as they enter and leave the manufacturing sector and for goods entering the building industry. This contrasts with the Consumer Price Index which measures changes in the retail prices paid by consumers, as explained earlier in this chapter.

### Long-term price series

Table 28.7 presents a set of producer price indexes for the years 1861 to 1998–99. The indexes comprise the linked wholesale price indexes from 1861 to 1967–68 and the producer price index for manufacturing from 1968–69 onwards. These indexes are discussed below.

The first price index of this kind compiled by the ABS was the Melbourne Wholesale Price Index, which was introduced in 1912 with index numbers compiled back to 1861 using prices extracted from newspapers and trade publications. Index numbers were compiled up to

1961. The index related chiefly to basic materials and foods weighted in accordance with consumption in about the year 1910.

The next index published was the Wholesale Price (Basic Materials and Foodstuffs) Index which was introduced in 1939; index numbers are available for the period 1928 to 1970. The index related to commodities in their basic or primary form, and prices were obtained as near as possible to the point where they made their first effective impact on the local price structure. With few exceptions, prices were obtained from Melbourne sources.

The present range of producer price indexes was developed and produced progressively from the 1960s. The current indexes relate to the building industry, manufacturing industry, and (not included in this chapter) the mining industry.

The current set of producer price indexes is somewhat restricted in scope, being confined to the measurement of prices for goods used in or produced by the selected industries. As part of a long term program, the ABS is expanding the coverage of the producer price indexes to include

the measurement of price changes for the output of the service industries and the construction industry. This expansion in coverage is being undertaken in parallel with a move towards the implementation of a 'stage of production' framework for the producer price indexes, to supplement the current industry sector approach.

## Construction prices indexes

### Price Index of Materials Used in House Building

The Price Index of Materials Used in House Building measures changes in prices of selected materials used in the construction of houses in the Statistical Division containing each State capital city. The current index series were introduced in December 1995 on a reference base of 1989–90 = 100.0 and were linked to the previous series. The items and weights for the current series are based on estimated materials usage in a sample of representative houses constructed in the three years ending 1992–93.

The index was first compiled on a reference base of 1966–67 = 100.0, using a weighting pattern derived from estimated materials usage in 1968–69. Index numbers on a 1966–67 = 100.0 reference base are available for the period July 1966 to September 1986.

Rebased series of indexes were then introduced in October 1986 on a reference base of 1985–86 = 100.0 and were linked to the previous series. The items in the rebased series were selected and allocated weights on the basis of the estimated values of each material used in a sample of representative houses constructed in 1985–86.

Table 28.8 shows price index series for the seven years 1992–93 to 1998–99, for the weighted average of the six State capital cities and for the individual cities. The movements in the index are discussed in *Chapter 20, Construction*.

### 28.7 PRODUCER AND WHOLESALE PRICE INDEXES(a)

	Index No.
Melbourne Wholesale Price Index (All groups)	
1861	24.2
1871	19.3
1881	17.6
1891	14.9
1901	15.3
1911	15.7
1921	30.0
1925–26	29.7
Wholesale Price (Basic Materials and Foodstuffs) Index (All groups)	
1930–31	25.4
1935–36	23.9
1940–41	29.3
1945–46	36.5
1950–51	62.7
1955–56	85.9
1960–61	92.5
1961–62	86.4
1962–63	87.4
1963–64	90.0
1964–65	91.3
1965–66	95.4
1966–67	98.4
1967–68	99.7
Price Index of Articles Produced by Manufacturing Industry	
1968–69	100.0
1969–70	103.9
1970–71	108.5
1971–72	113.9
1972–73	120.7
1973–74	134.6
1974–75	158.1
1975–76	177.8
1976–77	196.9
1977–78	213.8
1978–79	237.4
1979–80	274.9
1980–81	305.2
1981–82	328.9
1982–83	360.2
1983–84	382.8
1984–85	404.8
1985–86	430.3
1986–87	458.5
1987–88	492.1
1988–89	526.0
1989–90	559.9
1990–91	584.6
1991–92	586.7
1992–93	600.9
1993–94	607.3
1994–95	620.9
1995–96	636.7
1996–97	639.9
1997–98	648.3
1998–99	646.7

(a) Reference base year 1968–69 = 100.0.

**28.8 PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING, Six State Capital Cities(a)(b)**

Year	Weighted average of six State capital cities	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart
1992–93	106.9	106.8	105.7	110.2	106.3	106.9	109.9
1993–94	112.0	111.3	112.1	113.5	117.1	109.1	112.8
1994–95	115.4	115.0	115.9	115.9	118.8	112.7	117.3
1995–96	115.7	115.9	115.4	115.1	118.2	114.8	120.7
1996–97	116.1	116.3	115.3	115.3	120.6	115.3	120.1
1997–98	118.2	119.7	117.1	117.1	123.3	115.9	121.0
1998–99	119.5	121.6	118.0	118.2	125.0	116.1	122.2

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movement within each city individually. They do not compare price levels between cities.

Source: *Price Index of Materials Used in House Building, Six State Capital Cities (6408.0)*.

### Price Index of Materials Used in Building Other than House Building

The Price Index of Materials Used in Building Other than House Building measures changes in prices of selected materials used in the construction of buildings other than houses in the Statistical Division containing each State capital city. The types of building directly represented in the index are: flats and other dwellings; hotels, motels and hostels; shops; factories; offices; other business premises; education buildings; health buildings; and other non-residential buildings.

The current index series were introduced in October 1993 on a reference base of 1989–90 = 100.0. The composition of these indexes reflects the usage of materials in the five years ending June 1992.

The index was first compiled on a reference base of 1966–67 = 100.0 using a weighting pattern derived from estimated materials usage in 1966–67. Rebased indexes for the six State capital cities were introduced in February 1981 on a reference base of 1979–80 = 100.0. The composition of these indexes reflected the usage of materials in the three years ending June 1977.

Table 28.9 shows price index series for the seven years 1992–93 to 1998–99 for the weighted average of the six State capital cities and for the individual cities. The movements in the index are discussed in *Chapter 20, Construction*.

A table setting out more detailed information in respect of individual building materials is contained in that chapter.

**28.9 PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING, Six State Capital Cities(a)(b)**

Year	Weighted average of six State capital cities	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart
1992–93	106.0	106.5	104.4	108.9	105.1	105.7	108.2
1993–94	107.5	107.0	106.7	110.1	107.9	107.1	110.1
1994–95	110.4	110.3	108.9	112.9	110.9	110.1	112.2
1995–96	112.7	112.6	111.1	115.0	112.7	113.2	115.1
1996–97	113.2	113.1	110.9	115.9	114.1	114.6	116.3
1997–98	114.2	114.4	111.4	117.2	115.1	114.6	117.4
1998–99	115.2	115.2	113.2	118.4	115.5	114.1	118.5

(a) Reference base year 1989–90 = 100.0. (b) The separate city indexes measure price movements within each city individually. They do not compare price levels between cities.

Source: *Price Index of Materials Used in Building Other than House Building, Six State Capital Cities (6407.0)*.

## Manufacturing price indexes

### Price Indexes of Materials Used in Manufacturing Industries

These indexes measure changes in prices of materials used by establishments classified to the Manufacturing Division of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC), 1993 edition.

Separate price indexes are published for materials used in the Manufacturing Industry as a whole (split into imported and domestic materials) and for 17 separate Manufacturing sectors (defined in terms of ANZSIC subdivisions or ANZSIC groups).

The indexes are compiled and published on a net sector basis. That is, each index includes only those materials which are used in the defined sector of Australian manufacturing industry and which have been produced by establishments outside that sector.

The current index series were introduced in July 1996 on a reference base of 1989–90 = 100.0. The items included in the indexes were allocated weights in accordance with the estimated value of manufacturing usage in 1989–90.

The indexes were first compiled on a reference base of 1968–69 = 100.0, using a weighting pattern derived from estimated manufacturing usage in 1971–72. Index numbers for this first series are available for the period July 1968 to November 1985.

A rebased series was introduced in December 1985 on a reference base of 1984–85 = 100.0 using a weighting pattern based on estimated manufacturing usage in 1977–78.

Table 28.10 shows summary indexes for materials used. A table setting out more detailed index numbers is in *Chapter 19, Manufacturing*.

**28.10 PRICE INDEXES OF MATERIALS USED IN MANUFACTURING INDUSTRIES(a)**

Year	Imported materials	Domestic materials	All materials
1992–93	107.8	105.7	<b>106.4</b>
1993–94	108.8	102.5	<b>104.7</b>
1994–95	112.7	104.9	<b>107.6</b>
1995–96	117.6	106.0	<b>110.1</b>
1996–97	109.4	104.2	<b>106.0</b>
1997–98	112.2	104.1	<b>107.0</b>
1998–99	113.5	101.5	<b>105.9</b>

(a) Reference base year 1989–90 = 100.0.

Source: *Price Indexes of Materials Used in Manufacturing Industries, Australia* (6411.0).

### Price Indexes of Articles Produced by Manufacturing Industries

These indexes measure movements in the prices of articles produced by the Manufacturing Industry. For the purpose of the indexes, Manufacturing Industry is defined to be establishments classified to the Manufacturing Division of the *Australian Standard Industrial Classification* (ASIC), 1983 edition.

Separate price indexes are published for articles produced by the Manufacturing Industry as a whole and for 13 separate Manufacturing sectors (defined in terms of ASIC subdivisions or ASIC groups).

The indexes are constructed on a net sector basis. This approach means that the All Manufacturing Industry Index represents price movements of goods which are produced by establishments in the Manufacturing Division, for sale or transfer to establishments outside the Manufacturing Division, for export, or for use as capital equipment. Articles which are sold or transferred to other establishments within manufacturing industry, for further processing or for use as inputs, are excluded.

The current indexes were introduced from May 1990. The composition and weighting pattern are based on the value of production in 1986–87 and the indexes are on a reference base of 1988–89 = 100.0.

The indexes were first published in June 1976 on a reference base of 1968–69 = 100.0, with indexes compiled retrospectively to July 1968. The composition and weighting patterns of the indexes were based on the value of production in 1971–72.

Table 28.11 sets out a summary index for articles produced. A table setting out more detailed index numbers is in *Chapter 19, Manufacturing*.

**28.11 PRICE INDEXES OF ARTICLES PRODUCED BY MANUFACTURING INDUSTRIES(a)(b)**

Year	Manufacturing Division Index
1992–93	114.3
1993–94	115.5
1994–95	118.1
1995–96	121.1
1996–97	121.8
1997–98	123.4
1998–99	123.1

(a) Reference base year 1988–89 = 100.0. (b) For a full description of Division C, Manufacturing and the subdivisions within the Manufacturing Division, see Australian Standard Industrial Classification (ASIC) (1201.0), 1983 edition.

Source: *Price Indexes of Articles Produced by Manufacturing Industry, Australia* (6412.0).

## International Trade Price indexes

### Export Price Index

The Export Price Index measures changes in prices of exports of merchandise from Australia. The index numbers for each month relate to prices of exports actually shipped during the period.

The first index of export prices was compiled annually from 1901 to 1916–17 as a current weighted unit value index.

The method of calculation was changed in 1918 to incorporate fixed weights, applied to the average unit values of each export in successive years. This index was published for the years 1897 to 1929–30.

Two new series of monthly export price indexes were published in 1937, compiled back to 1928. One index used fixed weights and the other used changing weights. The methodology was changed

and actual export prices were used instead of unit values. The indexes were compiled until 1962.

In 1962, a fixed weighted index on the reference base of 1959–60 = 100.0 was introduced. A new interim series was linked to this index, still with a reference base of 1959–60 = 100.0, but with updated weights from July 1969. The interim index was replaced in 1979 by an index on a reference base of 1974–75. The current index with a reference base of 1989–90 = 100.0 was released in 1990.

Tables setting out index numbers based on the *Australian Harmonised Export Commodity Classification* (AHECC) and on an industry of origin basis defined in terms of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC) are contained in *Chapter 30, International accounts and trade*.

### Import Price Index

The Import Price Index measures changes in the prices of imports of merchandise landed in Australia on a free-on-board country of origin basis. The index numbers for each month relate to prices of imports landed in Australia during the period.

The first import price index produced by the ABS covered the period from the September quarter 1981 to the June quarter 1991 on a reference base of 1981–82 = 100.0. This index replaced an index previously published by the Reserve Bank of Australia on a reference base of 1966–67 = 100.0. The Reserve Bank's import price index was published from 1928 until September 1982.

The current Import Price Index series was introduced in December 1991 with index numbers compiled from April 1991 onwards, on a reference base of 1989–90 = 100.0.

To give a broad indication of long-term changes, table 28.12 draws on the available international trade indexes. Tables setting out index numbers based on the *Standard International Trade Classification Revision 3* (SITC Rev. 3), an industry of origin basis defined in terms of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC), the United Nations *Classification by Broad Economic Categories* (BEC), and end use classes (capital, intermediate and consumption goods) are contained in *Chapter 30, International accounts and trade*.



### 28.12 INTERNATIONAL TRADE PRICE INDEXES(a)

Year	Export Price Index (All groups)	Import Price Index (All groups)
1901	15	..
1911	17	..
1921-22	25	..
1931-32	18	22
1936-37	29	21
1941-42	27	35
1946-47	53	51
1951-52	123	92
1956-57	115	91
1960-61	93	95
1961-62	94	94
1962-63	99	94
1963-64	112	96
1964-65	103	97
1965-66	105	99
1966-67	103	100
1967-68	98	99
1968-69	100	100
1969-70	101	103
1970-71	99	108
1971-72	102	114
1972-73	131	113
1973-74	157	131
1974-75	177	189
1975-76	193	214
1976-77	216	246
1977-78	227	278
1978-79	256	307
1979-80	309	403
1980-81	328	450
1981-82	332	458
1982-83	360	506
1983-84	369	524
1984-85	396	580
1985-86	417	659
1986-87	430	731
1987-88	469	742
1988-89	501	694
1989-90	527	729
1990-91	501	752
1991-92	472	749
1992-93	493	817
1993-94	484	843
1994-95	501	837
1995-96	508	838
1996-97	488	791
1997-98	522	841
1998-99	505	874

(a) Reference base year 1968-69 = 100.0.

Source: The sources used for the Import Price Index are the Reserve Bank of Australia Bulletin up to and including 1981-82, and the ABS Import Price Index, Australia (6414.0) thereafter. The source used for the Export Price Index is the ABS Export Price Index, Australia (6405.0).

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Reserve Bank of Australia, *The Reserve Bank of Australia Bulletin*, various issues. Articles published in the Bulletin since September 1996 can be found on the Reserve Bank's Internet site at <http://www.rba.gov.au>



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## Introduction

A wide range of economic data is available to analyse the performance of various components of the Australian economy over time. For example, data are regularly published on the number of houses being built, the number of cars produced, whether employment is rising or falling, the composition of exports and imports and so on. While these and other statistical series are important in their own right, none of them in isolation can provide an overall picture of the state of the economy.

National accounts are designed to provide a systematic summary of national economic activity, and have been developed to assist in the practical application of economic theory. The system of national accounts includes national income, expenditure and product accounts, financial accounts, the national balance sheet and input-output tables. At their summary level, the national income, expenditure and product accounts reflect key economic flows: production, the distribution of incomes, consumption, saving and investment. At their more detailed level, they are designed to present a statistical picture of the structure of the economy and the detailed processes that make up domestic production and its distribution. The financial accounts show the financial assets and liabilities of the nation and of each institutional sector, the market for financial instruments and inter-sectoral financial transactions. The balance sheet is a comprehensive statement of produced and non-produced assets, liabilities to the rest of the world and net worth. Input-output tables show which goods and services are produced by each industry and how they are used.

The national accounts include many detailed classifications (e.g. by industry, by purpose, by commodity, by State and Territory, and by asset type) relating to major economic aggregates.

The main output from the national accounts is a measure of the overall value of economic production in Australia in a given period, but without any double counting of the goods and services being produced. Many goods and services are bought by businesses for use in their own productive activities (e.g. steel is bought by car manufacturers). If the value of all goods and services produced were simply added together there would be serious duplication because some goods and services would be added in several times at various stages of production. The overall measure of production, excluding double

counting, is called 'gross domestic product', which is commonly referred to as GDP. It is formally defined as: "the total market value of goods and services produced in Australia after deducting the cost of goods and services used up (intermediate consumption) in the process of production, but before deducting allowances for the consumption of fixed capital (depreciation)."

The performance of the economy is represented in the national accounts by such measures as growth in GDP. While movements in the chain volume measure of GDP (from which the direct effects of price changes have been removed) are an important indicator of economic growth, there is no single measure which can describe all aspects of the wellbeing of a country's citizens.

There are significant aspects of the quality of life which cannot be comprehended in a system of economic accounts, just as there are significant aspects of an individual's wellbeing which are not measured in the conventional concept (or any other concept) of that individual's income.

Notwithstanding their limitations, especially in relation to uses for which they were never designed, the national accounts provide vital information for a range of important purposes. The system of national accounts also provides a framework or structure which can be, and has been, adapted and extended to facilitate the examination of other economic and social policy issues.

A detailed presentation of the concepts underlying the national accounts is provided in the ABS publication *Australian National Accounts: Concepts, Sources and Methods* (5216.0). This publication forms part of the *Statistical Concepts Reference Library* (1361.0.30.001) on CD-ROM. An updated version, reflecting the latest international standards, is expected to be released early in the year 2000.

## Measuring GDP

There are three ways of measuring GDP:

- The *income approach*, which measures GDP by summing the incomes accruing from production: compensation of employees (wages and salaries, and employers' social contributions); gross operating surplus (profits); gross mixed income (income from unincorporated businesses, including a return to the owners of these businesses for their labour); and taxes less subsidies on production and imports.

- The *expenditure approach*, which involves summing all final expenditures on goods and services (i.e. those goods and services which are not processed any further), adding on the contributions of changes in inventories and the value of exports, and deducting the value of imports. Final expenditures consist of final consumption expenditure and gross fixed capital formation. Exports are included in GDP because they are part of Australian production even though they are sold to overseas purchasers. Imports are deducted because, although they are included in final expenditures (e.g. when someone buys an imported video recorder its value is included as part of final consumption expenditure), they are not part of Australian production.
- The *production approach* calculates GDP by taking the value of goods and services produced by an industry (its output at basic values, which implicitly includes taxes less subsidies on production) and deducting the cost of goods and services used up by the industry in the productive process (intermediate consumption), which leaves the value added by the industry. GDP is then obtained by summing value added across all industries, and adding to this taxes less subsidies on products.

While each approach should, conceptually, deliver the same estimate of GDP, if the three measures are compiled independently using different data sources then different estimates of GDP result. However, the Australian national income, expenditure and product estimates have been integrated with annual balanced supply and use tables which are available for 1994–95, 1995–96 and 1996–97. Integration with balanced supply and use tables ensures that the same estimate of GDP is obtained from the three approaches, so that annual estimates using the income, expenditure and production approaches are identical for the years for which supply and use tables are available.

Prior to 1994–95, and for 1997–98, the estimates using each approach are based on independent sources, and there are usually differences between the income, expenditure and production estimates. Nevertheless, for these periods, a single estimate of GDP has been compiled.

Table 29.1 shows time series of chain volume measures for GDP, and GDP per capita, from 1971–72 to 1997–98. (For a discussion of chain volume measures, see the section *Chain volume or 'real' GDP* below.)

The chain volume measure of GDP increased by 4.6% in 1997–98, following an increase of 3.2% in 1996–97. For some analytical purposes, it is important to allow for the impact of population growth on movements in GDP. Annual growth in GDP per capita has been about 1 to 2 percentage points lower than that for GDP since the mid-1970s and was negative in 1974–75, 1977–78, 1982–83, 1990–91 and 1991–92 (graph 29.2).

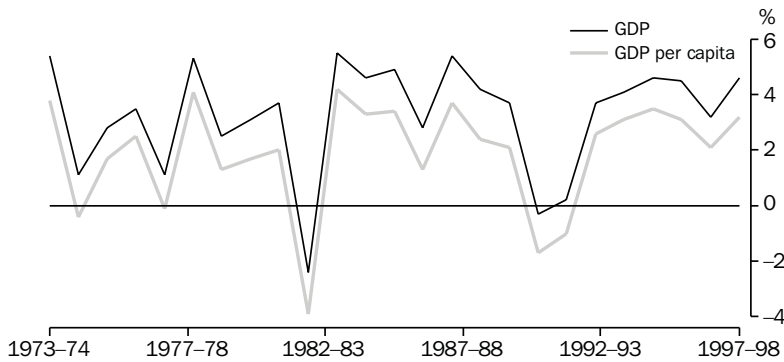
**29.1 GROSS DOMESTIC PRODUCT, Chain Volume Measures(a)**

	GDP	GDP per capita
Year	\$m	\$m
1971–72	242 950	18 416
1972–73	249 770	18 630
1973–74	263 352	19 347
1974–75	266 326	19 274
1975–76	273 802	19 605
1976–77	283 443	20 087
1977–78	286 660	20 074
1978–79	301 710	20 899
1979–80	309 285	21 181
1980–81	318 923	21 535
1981–82	330 625	21 961
1982–83	322 719	21 104
1983–84	340 382	21 981
1984–85	355 981	22 700
1985–86	373 285	23 476
1986–87	383 917	23 787
1987–88	404 710	24 679
1988–89	421 570	25 265
1989–90	437 094	25 805
1990–91	435 780	25 370
1991–92	436 846	25 116
1992–93	453 063	25 767
1993–94	471 838	26 568
1994–95	493 689	27 498
1995–96	515 868	28 358
1996–97	532 204	28 948
1997–98	556 923	29 883

(a) Reference year 1996–97.

Source: Australian National Accounts: National Income, Expenditure and Product (5206.0); Australian System of National Accounts (5204.0).

## 29.2 GDP AND GDP PER CAPITA



Source: Australian System of National Accounts (5204.0).

## Chain volume or 'real' GDP

The expenditure approach to calculating GDP measures Australian production by summing the amounts spent by the final users on the goods and services produced. These current price values relate to the prices of the goods and services produced in the period concerned, and so the growth rate of GDP from one period to another is affected by changes in prices as well as changes in quantities. Such values are useful for analyses relating to a single period and for comparing proportions for different periods, but they are not so useful for calculating the growth rates of GDP and its components.

For example, the national accounts may show that the amount spent on motor cars is 5% higher this year than it was last year. If the price of cars has increased by 5% over the last year and there has been no change in the quality of the cars, then the number of cars bought will not have changed—expenditure has risen only because the price of cars has risen.

For many of uses it is necessary to know how much physical production (e.g. the number of cars made) has changed, rather than just the current (or dollar) value of production. Constant price or chain volume estimates are the way in which this is achieved. They provide a measure, in dollar values, which indicates changes in the actual quantity (and quality) of items produced or purchased. Because of this, volume measures of GDP are often referred to as estimates of 'real' GDP.

Constant price estimates are derived by replacing the unit price of each type of good and service traded in the current period with the

corresponding unit price in the chosen base year (most recently 1989–90).

The base year unit prices used to derive constant price estimates are effectively the weights used to combine the quantities of different goods and services. The unit prices of different goods and services tend to grow at different rates—some at dramatically different rates. For example, the prices of computer equipment are estimated to have declined by about 75% between 1989–90 and mid 1998, while the prices of most other goods and services have increased. Thus, over time, the price relativities of some goods and services change appreciably. Changes in price relativities adversely affect the usefulness of constant price estimates, particularly for periods distant from the base year, and consequently the base year used to derive constant price estimates needs to be changed from time to time. It was ABS practice to change the base year every five years, but it was found that this is commonly insufficient, and that better estimates of growth in volume can be obtained by rebasing every year and linking the resulting indexes to form annually-reweighted chain volume measures. As a result, chain volume estimates have replaced constant price estimates in all ABS publications released from the end of 1998.

The impact of the change from constant price estimates to chain volume measures varies considerably from statistic to statistic: it depends on the extent of the disparity in the growth rates of the prices and volumes of the components. If, as is often the case for expenditure series, those goods and services which experience the lowest growth in prices also experience the highest growth in volumes, then for periods after the final constant price base year (1989–90), the chain



volume measures of their aggregates will have a lower growth rate than the constant price estimates they replace.

Chain volume measures are not generally additive. In other words, in general, component chain volume measures do not sum to a total in the way original current price components do. In order to minimise the impact of this property, the ABS is using the latest base year as the reference year (i.e. the year when the annual chain volume measure equals the current price annual value). By adopting this approach, non-additivity does not apply to the reference year (1996–97 for the national accounts series in this edition of *Year Book Australia*) and the following year. In future, the latest base year and the reference year will be advanced one year every year. A change in reference year changes levels but not growth rates.

## Chain price indexes and implicit price deflators

A by-product of the calculation of chain volume measures is the Implicit Price Deflator (IPD). An IPD is the price index obtained when a current price estimate is divided by the corresponding chain volume measure. The ABS publishes a time series of IPDs for each of the expenditure components of GDP (excluding the changes in inventories).

Chain price indexes are also published for the major expenditure aggregates. They are the prices analogue of chain volume estimates. Quarterly chain price indexes are generally superior to IPDs for measuring price change, because the quarter-to-quarter growth rates calculated from the IPDs reflect changes in composition of the expenditure aggregate as well as pure price change. For example, it is possible for an IPD to increase or decrease from one quarter to another without there being any change in price. Changes in chain price indexes, on the other hand, only reflect pure price change.

### 29.3 DOMESTIC PRODUCTION ACCOUNT, Current Prices—Five-Yearly

	1964–65	1969–70	1974–75	1979–80	1984–85
	\$m	\$m	\$m	\$m	\$m
Final consumption expenditure					
General government	2 778	4 851	12 332	23 810	45 866
Households	12 592	19 067	37 970	72 830	127 371
<i>Total final consumption expenditure</i>	<i>15 370</i>	<i>23 918</i>	<i>50 302</i>	<i>96 640</i>	<i>173 237</i>
Gross fixed capital formation					
Private	3 948	6 506	10 142	22 041	39 332
Public	1 791	2 640	5 620	8 832	15 983
<i>Total gross fixed capital formation</i>	<i>5 739</i>	<i>9 146</i>	<i>15 762</i>	<i>30 873</i>	<i>55 315</i>
Changes in inventories	565	556	683	1 101	2 337
<i>Gross national expenditure</i>	<i>21 674</i>	<i>33 620</i>	<i>66 747</i>	<i>128 614</i>	<i>230 889</i>
Exports of goods and services	3 050	4 765	10 114	22 017	35 739
less Imports of goods and services	3 535	4 871	10 510	21 444	40 790
Statistical discrepancy (expenditure-based)	242	33	787	–900	–981
<b>Gross domestic product</b>	<b>21 431</b>	<b>33 547</b>	<b>67 138</b>	<b>128 287</b>	<b>224 857</b>
Compensation of employees	10 487	16 867	38 189	65 244	112 754
Gross operating surplus	4 909	8 567	14 582	31 527	61 892
Gross mixed income	4 079	5 364	8 365	18 092	24 936
<i>Total factor income</i>	<i>19 475</i>	<i>30 798</i>	<i>61 136</i>	<i>114 863</i>	<i>199 582</i>
Taxes less subsidies on production and imports	1 909	2 927	6 079	12 850	25 262
Statistical discrepancy (income-based)	47	–178	–77	574	13
<b>Gross domestic product</b>	<b>21 431</b>	<b>33 547</b>	<b>67 138</b>	<b>128 287</b>	<b>224 857</b>

Source: Australian System of National Accounts (5204.0).

## National income, expenditure and product accounts

The Australian national income, expenditure and product accounts are compiled and published in some detail every quarter, in *Australian National Accounts: National Income, Expenditure and Product* (5206.0), and in greater detail once a year, in *Australian System of National Accounts* (5204.0).

## Gross domestic product account

The gross domestic product account indicates changes in Australian production over time. Tables 29.3 and 29.4 show the gross domestic product account in current prices for a number of

years between 1964–65 and 1997–98; table 29.3 shows a series of snapshots at five-yearly intervals to 1984–85, while table 29.4 shows annual time series from 1989–90 to 1997–98. Tables 29.5 and 29.6 show expenditure on GDP in real or chain volume terms.

Table 29.6 shows that, in real terms (i.e. after the effects of inflation are removed from the dollar value of Australia's production), there was a fall in production during the 1990–91 financial year. However, the seven years since the recession in 1990–91 have all shown growth in GDP. Although growth in 1991–92 was relatively low (0.2%), by 1994–95 it had accelerated to 4.6%, a growth rate which has generally been maintained since, except for a slowing in 1996–97.

**29.4 GROSS DOMESTIC PRODUCT ACCOUNT, Current Prices—Annual**

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Final consumption expenditure									
General government	69 729	75 842	81 208	84 791	86 669	89 690	95 200	97 810	103 581
Households	217 075	232 238	243 996	255 066	265 952	282 395	301 571	312 935	332 311
Total final consumption expenditure	286 804	308 080	325 204	339 857	352 621	372 085	396 771	410 745	435 892
Gross fixed capital formation									
Private	74 083	65 950	62 100	69 850	77 476	86 794	89 822	98 730	111 015
Public	23 834	23 042	22 746	22 193	21 465	23 858	22 977	22 161	20 915
Total gross fixed capital formation	97 917	88 992	84 846	92 043	98 941	110 652	112 799	120 891	131 930
Changes in inventories	5 391	–1 531	–2 415	312	1 799	1 909	1 219	–1 217	2 413
Gross national expenditure	390 112	395 541	407 635	432 212	453 361	484 646	510 789	530 419	570 235
Exports of goods and services	60 899	66 259	70 080	76 899	83 015	87 654	99 095	105 330	114 203
less Imports of goods and services	68 771	66 948	69 269	79 077	85 396	97 654	101 078	103 545	118 510
Statistical discrepancy (expenditure-based)	1 254	1 384	–2 515	–3 052	–1 532	0	0	0	–1 223
<b>Gross domestic product</b>	<b>383 494</b>	<b>396 236</b>	<b>405 931</b>	<b>426 982</b>	<b>449 448</b>	<b>474 646</b>	<b>508 806</b>	<b>532 204</b>	<b>564 705</b>
Compensation of employees	184 515	192 300	195 774	202 656	212 131	226 904	242 231	258 759	270 084
Gross operating surplus	112 231	119 048	124 837	133 494	141 030	146 454	156 214	159 672	173 878
Gross mixed income	44 238	40 772	40 391	43 624	44 959	46 539	51 158	52 024	54 217
Total factor income	340 984	352 120	361 002	379 774	398 120	419 897	449 603	470 455	498 179
Taxes less subsidies on production and imports	43 283	43 357	42 750	44 180	49 424	54 749	59 203	61 749	64 966
Statistical discrepancy (income-based)	–773	759	2 179	3 028	1 904	0	0	0	1 560
<b>Gross domestic product</b>	<b>383 494</b>	<b>396 236</b>	<b>405 931</b>	<b>426 982</b>	<b>449 448</b>	<b>474 646</b>	<b>508 806</b>	<b>532 204</b>	<b>564 705</b>

Source: *Australian System of National Accounts* (5204.0).

**29.5 EXPENDITURE ON GDP, Chain Volume Measures(a)—Five-Yearly**

	1964–65	1969–70	1974–75	1979–80	1984–85
	\$m	\$m	\$m	\$m	\$m
Final consumption expenditure	130 781	168 988	212 546	246 506	288 687
Gross fixed capital formation	37 242	49 027	53 309	63 539	78 468
<i>Domestic final demand</i>	<i>172 887</i>	<i>226 740</i>	<i>271 260</i>	<i>311 228</i>	<i>368 121</i>
<i>Gross national expenditure</i>	<i>177 779</i>	<i>232 038</i>	<i>275 497</i>	<i>315 524</i>	<i>368 639</i>
Exports of goods and services	15 128	22 129	27 376	35 839	43 632
less Imports of goods and services	20 856	26 833	34 586	37 121	51 288
Statistical discrepancy (expenditure-based)	-806	-2 787	-421	-6 164	-4 981
<b>Gross domestic product</b>	<b>169 723</b>	<b>223 306</b>	<b>266 326</b>	<b>309 285</b>	<b>355 981</b>

(a) Reference year for chain volume measures is 1996–97.

Source: Australian System of National Accounts (5204.0).

**29.6 EXPENDITURE ON GDP, Chain Volume Measures(a)—Annual**

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Final consumption expenditure									
General government	83 414	86 198	87 742	89 386	90 406	93 057	96 813	97 810	101 854
Households	260 148	262 058	267 467	273 137	279 626	294 057	306 312	312 935	327 236
<i>Total final consumption expenditure</i>	<i>343 583</i>	<i>348 280</i>	<i>355 234</i>	<i>362 546</i>	<i>370 043</i>	<i>387 114</i>	<i>403 124</i>	<i>410 745</i>	<i>429 091</i>
Gross fixed capital formation									
Private	74 986	66 764	63 486	69 629	76 095	85 316	87 457	98 730	110 110
Public	24 640	23 096	22 352	21 908	21 217	23 734	22 597	22 161	20 821
<i>Total gross fixed capital formation</i>	<i>99 713</i>	<i>89 920</i>	<i>85 898</i>	<i>91 523</i>	<i>97 276</i>	<i>109 010</i>	<i>110 030</i>	<i>120 891</i>	<i>130 931</i>
<i>Domestic final demand</i>	<i>444 406</i>	<i>437 808</i>	<i>440 196</i>	<i>453 358</i>	<i>466 837</i>	<i>496 001</i>	<i>512 876</i>	<i>531 636</i>	<i>560 021</i>
Changes in inventories	6 280	-1 278	-2 673	577	1 557	2 969	1 366	-1 217	2 229
<i>Gross national expenditure</i>	<i>449 625</i>	<i>435 474</i>	<i>436 826</i>	<i>453 126</i>	<i>467 803</i>	<i>498 021</i>	<i>514 819</i>	<i>530 419</i>	<i>562 250</i>
Exports of goods and services	58 191	64 875	70 681	75 341	82 593	86 492	95 464	105 330	109 362
less Imports of goods and services	70 748	66 593	68 920	73 162	78 017	90 838	94 456	103 545	113 484
Statistical discrepancy (expenditure-based)	1 420	1 522	-2 710	-3 247	-1 613	0	0	0	-1 205
<b>Gross domestic product</b>	<b>437 094</b>	<b>435 780</b>	<b>436 846</b>	<b>453 063</b>	<b>471 838</b>	<b>493 689</b>	<b>515 868</b>	<b>532 204</b>	<b>556 923</b>

(a) Reference year for chain volume measures is 1996–97.

Source: Australian System of National Accounts (5204.0).

The gross domestic product account can also be used to show changes in the share of income accruing to labour (i.e. compensation of employees) compared with the share accruing to capital (i.e. profits, defined as the gross operating surplus of non-financial and financial corporations). Graphs 29.7 and 29.8 show how

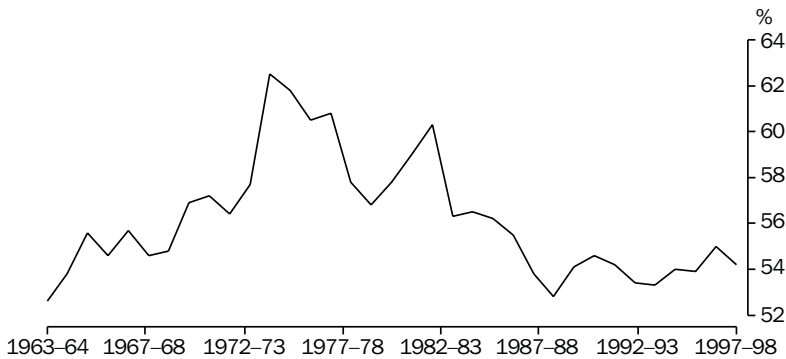
the shares of total factor income accruing to wages and to profits have changed since 1964–65. (Total factor income is equal to the sum of compensation of employees, gross operating surplus and gross mixed income.)

The highest recorded value of the wages share of total factor income was 62.5% in 1974–75. The wages share has recovered somewhat from its low value of 52.8% in 1988–89, but remains below the level recorded for most of the 1970s and early

1980s. The wages share has remained relatively stable during the 1990s, maintaining levels similar to those during the 1960s.

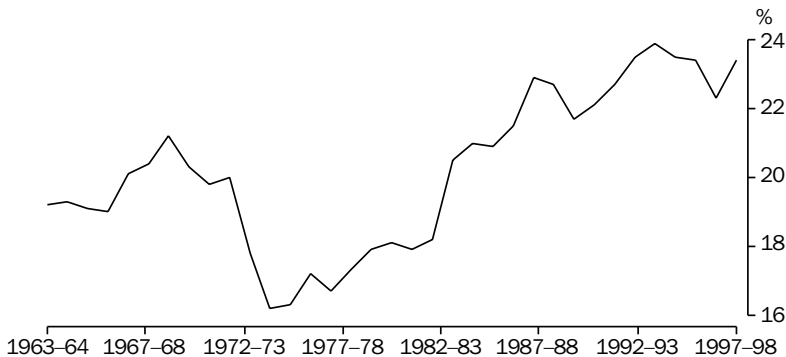
In 1997–98, the profits share of total factor income (23.4%) was marginally below its highest share of 23.9%, recorded in 1993–94.

### 29.7 WAGES SHARE OF TOTAL FACTOR INCOME



Source: Australian System of National Accounts (5204.0).

### 29.8 PROFITS SHARE OF TOTAL FACTOR INCOME



Source: Australian System of National Accounts (5204.0).

## National income account

The national income account shows the sources of national income and how much of this income is spent on final consumption. That part of income which is not spent in this way is saving.

Tables 29.9 and 29.10 show the income account for a number of years between 1964–65 and 1997–98; table 29.9 shows a series of snapshots at five-yearly intervals to 1984–85, while table 29.10 shows annual time series from 1989–90 to 1997–98.

**29.9 NATIONAL INCOME ACCOUNT, Current Prices—Five-Yearly**

	1964–65	1969–70	1974–75	1979–80	1984–85
	\$m	\$m	\$m	\$m	\$m
<b>Income</b>					
Compensation of employees	10 487	16 867	38 189	65 244	112 754
Gross operating surplus	4 909	8 567	14 582	31 527	61 892
Gross mixed income	4 079	5 364	8 365	18 092	24 936
Taxes less subsidies on production and imports	1 909	2 927	6 079	12 850	25 262
Net primary income from non-residents	–279	–578	–692	–2 401	–5 814
<i>Gross national income</i>	<i>21 105</i>	<i>33 147</i>	<i>66 523</i>	<i>125 312</i>	<i>219 030</i>
Net secondary income from non-residents	–68	–98	–173	–339	–418
<b>Gross disposable income</b>	<b>21 037</b>	<b>33 049</b>	<b>66 350</b>	<b>124 973</b>	<b>218 612</b>
Use of gross disposable income					
Final consumption expenditure					
General government	2 778	4 851	12 332	23 810	45 866
Households	12 592	19 067	37 970	72 830	127 371
<i>Total final consumption expenditure</i>	<i>15 370</i>	<i>23 918</i>	<i>50 302</i>	<i>96 640</i>	<i>173 237</i>
Net saving(a)	2 758	4 208	6 617	9 563	11 019
Consumption of fixed capital	2 909	4 923	9 431	18 770	34 356
<b>Total use of gross disposable income</b>	<b>21 037</b>	<b>33 049</b>	<b>66 350</b>	<b>124 973</b>	<b>218 612</b>

(a) Net saving is derived as a balancing item.

Source: Australian System of National Accounts (5204.0).

**29.10 NATIONAL INCOME ACCOUNT, Current Prices—Annual**

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Income</b>									
Compensation of employees	184 515	192 300	195 774	202 656	212 131	226 904	242 231	258 759	270 084
Gross operating surplus	112 231	119 048	124 837	133 494	141 030	146 454	156 214	159 672	173 878
Gross mixed income	44 238	40 772	40 391	43 624	44 959	46 539	51 158	52 024	54 217
Taxes less subsidies on production and imports	43 283	43 357	42 750	44 180	49 424	54 749	59 203	61 749	64 966
Net primary income from non-residents	–15 244	–17 222	–14 054	–12 682	–13 696	–18 321	–19 874	–19 296	–18 794
<i>Gross national income</i>	369 023	378 255	389 698	411 272	433 848	456 325	488 932	512 908	544 351
Net secondary income from non-residents	163	222	–134	–350	–339	–528	54	–107	–165
<b>Gross disposable income</b>	<b>369 186</b>	<b>378 477</b>	<b>389 564</b>	<b>410 922</b>	<b>433 509</b>	<b>455 797</b>	<b>488 986</b>	<b>512 801</b>	<b>544 186</b>
Use of gross disposable income									
Final consumption expenditure									
General government	69 729	75 842	81 208	84 791	86 669	89 690	95 200	97 810	103 581
Households	217 075	232 238	243 996	255 066	265 952	282 395	301 571	312 935	332 311
<i>Total final consumption expenditure</i>	286 804	308 080	325 204	339 857	352 621	372 085	396 771	410 745	435 892
Net saving(a)	21 345	6 096	–2 734	441	6 334	6 766	11 604	19 684	20 278
Consumption of fixed capital	61 037	64 301	67 094	70 624	74 554	76 946	80 611	82 372	88 016
<b>Total use of gross disposable income</b>	<b>369 186</b>	<b>378 477</b>	<b>389 564</b>	<b>410 922</b>	<b>433 509</b>	<b>455 797</b>	<b>488 986</b>	<b>512 801</b>	<b>544 186</b>

(a) Net saving is derived as a balancing item.

Source: Australian System of National Accounts (5204.0).

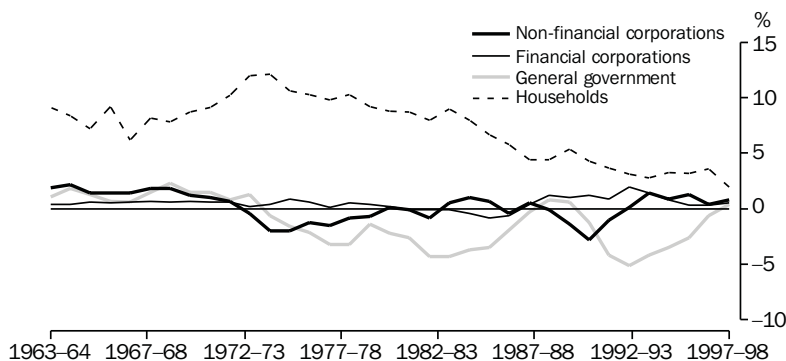
Graph 29.11 shows saving by institutional sector as a proportion of GDP for the years 1964–65 to 1997–98. Household net saving as a percentage of GDP generally rose between 1964–65 and 1974–75, but has fallen subsequently from its high of 12.1% in 1974–75 to 2.0% in 1997–98 (\$11.4b). General government net saving was negative from 1974–75 to 1996–97 (except for 1988–89 and 1989–90). In 1997–98 it was 0.4% of GDP (\$2.1b). In 1997–98 net saving of non-financial corporations was 0.8% of GDP (\$4.3b). Net saving of financial corporations was negative from 1981–82 to 1986–87, the only period for which this sector has recorded negative net saving. In 1997–98 net saving of financial corporations was 0.5% of GDP (\$2.6b).

## National capital account

The national capital account shows how the saving from the national income account and consumption of fixed capital (depreciation) are used to finance gross fixed capital formation. If, as is currently the case for Australia, the nation's saving and consumption of fixed capital are not sufficient to pay for all the fixed capital needed for Australian production, the shortfall must be borrowed from overseas. The amount borrowed from overseas is shown in the national capital account as a negative entry for net lending to non-residents.

Tables 29.12 and 29.13 show the national capital account for a number of years between 1964–65 and 1997–98; table 29.12 shows a series of snapshots at five-yearly intervals to 1984–85, while table 29.13 shows annual time series from 1989–90 to 1997–98.

**29.11 NET SAVING, By Sector—Share of GDP**



Source: Australian System of National Accounts (5204.0).

**29.12 NATIONAL CAPITAL ACCOUNT, Current Prices—Five-Yearly**

	1964–65	1969–70	1974–75	1979–80	1984–85
	\$m	\$m	\$m	\$m	\$m
Net saving					
Non-financial corporations	464	617	–1 313	–961	2 257
Financial corporations	95	199	239	512	–985
General government	391	764	–418	–1 737	–8 280
Households	1 808	2 628	8 109	11 749	18 027
<i>Total net saving</i>	2 758	4 208	6 617	9 563	11 019
Consumption of fixed capital	2 909	4 923	9 431	18 770	34 356
Net capital transfers receivable from non-residents	45	70	4	138	541
<b>Gross saving and capital transfers</b>	<b>5 712</b>	<b>9 201</b>	<b>16 052</b>	<b>28 471</b>	<b>45 916</b>
Gross fixed capital formation					
Private	3 948	6 506	10 142	22 041	39 332
Public corporations	889	1 342	2 665	4 894	9 082
General government	902	1 298	2 955	3 938	6 901
<i>Total gross fixed capital formation</i>	5 739	9 146	15 762	30 873	55 315
Changes in inventories					
Private non-farm	441	425	662	1 146	2 123
Farm and public authorities	124	131	21	–45	214
<i>Total changes in inventories</i>	565	556	683	1 101	2 337
Acquisitions less disposals of non-produced non-financial assets	0	0	0	0	0
Statistical discrepancy	195	211	864	–1 474	–994
Net lending to non-residents	–787	–712	–1 257	–2 029	–10 742
<b>Total capital accumulation and net lending</b>	<b>5 712</b>	<b>9 201</b>	<b>16 052</b>	<b>28 471</b>	<b>45 916</b>

Source: Australian System of National Accounts (5204.0).



**29.13 NATIONAL CAPITAL ACCOUNT, Current Prices—Annual**

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Net saving									
Non-financial corporations	–5 343	–10 909	–4 170	571	6 391	4 316	6 533	2 048	4 268
Financial corporations	3 762	4 819	3 737	8 406	6 176	3 594	1 541	1 615	2 591
General government	2 128	–4 929	–17 219	–21 832	–18 713	–16 786	–13 001	–3 361	2 062
Households	20 798	17 115	14 918	13 296	12 480	15 642	16 531	19 382	11 357
Total net saving	21 345	6 096	–2 734	441	6 334	6 766	11 604	19 684	20 278
Consumption of fixed capital	61 037	64 301	67 094	70 624	74 554	76 946	80 611	82 372	88 016
Net capital transfers receivable from non-residents	1 963	2 071	2 079	604	300	540	1 049	1 323	1 097
<b>Gross saving and capital transfers</b>	<b>84 345</b>	<b>72 468</b>	<b>66 439</b>	<b>71 669</b>	<b>81 188</b>	<b>84 252</b>	<b>93 264</b>	<b>103 379</b>	<b>109 391</b>
Gross fixed capital formation									
Private	74 083	65 950	62 100	69 850	77 476	86 794	89 822	98 730	111 015
Public corporations	13 644	12 732	12 381	11 086	10 346	12 202	11 522	9 826	8 591
General government	10 190	10 310	10 365	11 107	11 119	11 656	11 455	12 335	12 324
Total gross fixed capital formation	97 917	88 992	84 846	92 043	98 941	110 652	112 799	120 891	131 930
Changes in inventories									
Private non-farm	2 201	–2 591	–1 804	444	1 421	2 941	2 170	1 627	2 012
Farm and public authorities	3 190	1 060	–611	–132	378	–1 032	–951	–2 844	401
Total changes in inventories	5 391	–1 531	–2 415	312	1 799	1 909	1 219	–1 217	2 413
Acquisitions less disposals of non-produced non-financial assets	0	–7	0	33	–17	–32	–25	6	–30
Statistical discrepancy	2 027	625	–4 694	–6 080	–3 436	0	0	0	–2 783
Net lending to non-residents	–20 990	–15 611	–11 298	–14 639	–16 099	–28 277	–20 729	–16 301	–22 139
<b>Total capital accumulation and net lending</b>	<b>84 345</b>	<b>72 468</b>	<b>66 439</b>	<b>71 669</b>	<b>81 188</b>	<b>84 252</b>	<b>93 264</b>	<b>103 379</b>	<b>109 391</b>

Source: Australian System of National Accounts (5204.0).

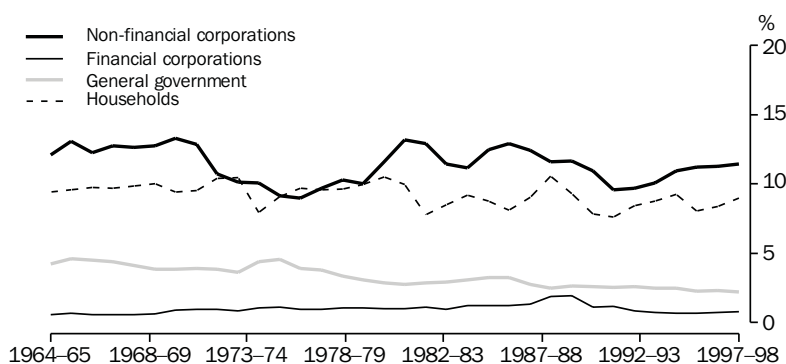
Graph 29.14 shows gross fixed capital formation (investment) by institutional sector as a proportion of GDP. For non-financial corporations this proportion generally fell during the 1970s, then rose to a peak of 13.2% in

1981–82; in 1997–98 it stood at 11.4%. Household investment as a proportion of GDP was 9.0% in 1997–98. General government investment as a proportion of GDP peaked at 4.5% in 1975–76; in 1997–98 it was 2.2% of GDP.

Graph 29.15 shows net lending by institutional sector as a proportion of GDP. A positive percentage for a sector indicates that it is a net lender to other sectors; a negative percentage indicates that it is a net borrower. The household sector has been a net lender for all years except 1993–94, 1994–95 and 1997–98 when it was a net borrower. As a proportion of GDP, net lending by households was –1.3% in 1997–98. Non-financial corporations have been net borrowers over the whole period from 1964–65 to 1997–98, and the amounts borrowed have fluctuated significantly from year to year; as a proportion of GDP, their

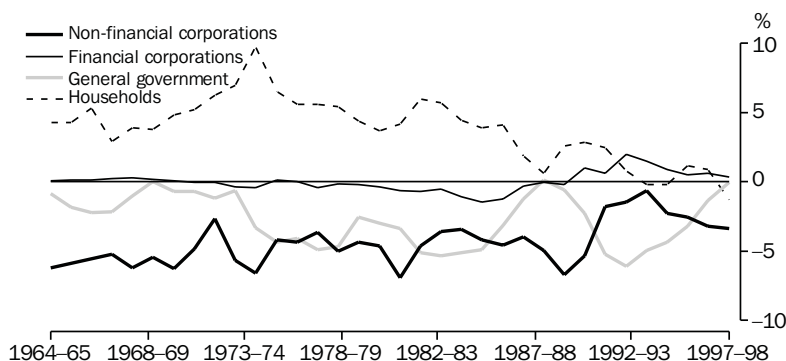
net borrowing was 3.4% in 1997–98. Financial corporations, which were net borrowers for most of the 1970s and early–mid 1980s, have been net lenders during the 1990s, although their lending has trended down; in 1997–98, their net lending was 0.3% of GDP. The general government sector has been a net borrower from other sectors for all years except 1969–70 and 1988–89, with significant borrowings recorded in the early 1990s. Expressed as a proportion of GDP, general government net borrowing peaked at 6.1% in 1992–93; in 1997–98 this sector's net borrowing was 0.1% of GDP.

**29.14 GROSS FIXED CAPITAL FORMATION, By Sector—Share of GDP**



Source: Australian System of National Accounts (5204.0).

**29.15 NET LENDING, By Sector—Share of GDP**



Source: Australian System of National Accounts (5204.0).

## External account

The external account is derived from the detailed balance of payments current and capital accounts (see *Chapter 30, International accounts and trade*). It shows Australia's exports and imports, incomes and transfers received by Australian residents from non-residents, and incomes and transfers payable to non-residents by Australian residents. The balance on the external current

account is net lending to non-residents. This is the same as the balance in the national capital account.

Tables 29.16 and 29.17 show the external income account for a number of years between 1964–65 and 1997–98; table 29.16 shows a series of snapshots at five-yearly intervals to 1984–85, while table 29.17 shows annual time series from 1989–90 to 1997–98.

**29.16 OVERSEAS TRANSACTIONS ACCOUNT, Current Prices—Five-Yearly**

	1964–65	1969–70	1974–75	1979–80	1984–85
	\$m	\$m	\$m	\$m	\$m
<b>Income of non-residents</b>					
Imports of goods and services	3 535	4 871	10 510	21 444	40 790
Primary income receivable					
Compensation of employees receivable	9	15	39	92	157
Property income receivable	380	711	1 135	3 108	7 440
Total primary income receivable	389	726	1 174	3 200	7 597
Secondary income receivable	143	314	656	1 056	1 614
<b>Total income of non-residents</b>	<b>4 067</b>	<b>5 911</b>	<b>12 340</b>	<b>25 700</b>	<b>50 001</b>
<b>Capital transfers to non-residents</b>	<b>35</b>	<b>69</b>	<b>176</b>	<b>266</b>	<b>511</b>
<b>Use of income by non-residents</b>					
Exports of goods and services	3 050	4 765	10 114	22 017	35 739
Primary income payable					
Compensation of employees payable	6	13	48	105	200
Property income payable	104	135	434	694	1 583
Total primary income payable	110	148	482	799	1 783
Secondary income payable	75	216	483	717	1 196
Balance on external current account	832	782	1 261	2 167	11 283
<b>Total use of income by non-residents</b>	<b>4 067</b>	<b>5 911</b>	<b>12 340</b>	<b>25 700</b>	<b>50 001</b>
<b>Capital transfers from non-residents</b>	<b>80</b>	<b>139</b>	<b>180</b>	<b>404</b>	<b>1 052</b>
<b>Net lending to non-residents</b>	<b>-832</b>	<b>-782</b>	<b>-1 261</b>	<b>-2 167</b>	<b>-11 283</b>

Source: Australian System of National Accounts (5204.0).

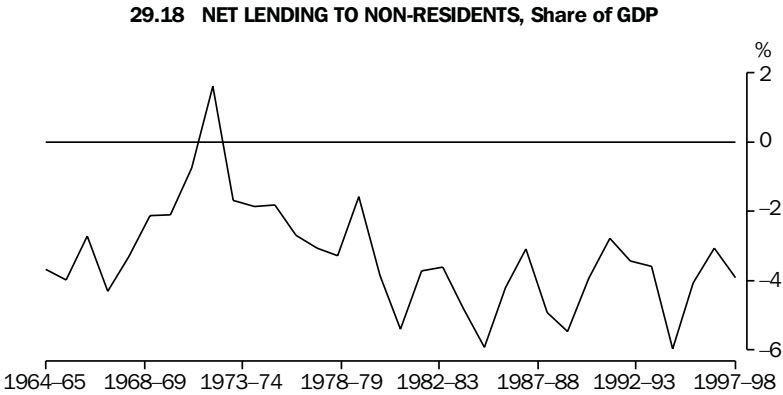
**29.17 OVERSEAS TRANSACTIONS ACCOUNT, Current Prices—Annual**

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Income of non-residents</b>									
Imports of goods and services	68 771	66 948	69 269	79 077	85 396	97 654	101 078	103 545	118 510
Primary income receivable									
Compensation of employees receivable	406	429	326	311	283	389	458	539	659
Property income receivable	19 241	20 550	18 179	18 451	19 193	24 860	26 550	27 305	28 230
<i>Total primary income receivable</i>	19 647	20 979	18 505	18 762	19 476	25 249	27 008	27 844	28 889
Secondary income receivable	2 444	2 653	2 898	3 423	3 451	3 554	3 238	3 604	3 925
<b>Total income of non-residents</b>	<b>90 862</b>	<b>90 580</b>	<b>90 672</b>	<b>101 262</b>	<b>108 323</b>	<b>126 457</b>	<b>131 324</b>	<b>134 993</b>	<b>151 324</b>
<b>Capital transfers to non-residents</b>	<b>629</b>	<b>653</b>	<b>695</b>	<b>743</b>	<b>758</b>	<b>843</b>	<b>907</b>	<b>877</b>	<b>971</b>
<b>Use of income by non-residents</b>									
Exports of goods and services	60 899	66 259	70 080	76 899	83 015	87 654	99 095	105 330	114 203
Primary income payable									
Compensation of employees payable	370	432	455	497	511	551	610	678	751
Property income payable	4 033	3 325	3 996	5 583	5 269	6 377	6 524	7 870	9 344
<i>Total primary income payable</i>	4 403	3 757	4 451	6 080	5 780	6 928	7 134	8 548	10 095
Secondary income payable	2 607	2 875	2 764	3 073	3 112	3 026	3 292	3 497	3 760
Balance on external current account	22 953	17 689	13 377	15 210	16 416	28 849	21 803	17 618	23 266
<b>Total use of income by non-residents</b>	<b>90 862</b>	<b>90 580</b>	<b>90 672</b>	<b>101 262</b>	<b>108 323</b>	<b>126 457</b>	<b>131 324</b>	<b>134 993</b>	<b>151 324</b>
<b>Capital transfers from non-residents</b>	<b>2 592</b>	<b>2 724</b>	<b>2 774</b>	<b>1 347</b>	<b>1 058</b>	<b>1 383</b>	<b>1 956</b>	<b>2 200</b>	<b>2 068</b>
<b>Net lending to non-residents</b>	<b>-22 953</b>	<b>-17 689</b>	<b>-13 377</b>	<b>-15 210</b>	<b>-16 416</b>	<b>-28 849</b>	<b>-21 803</b>	<b>-17 618</b>	<b>-23 266</b>

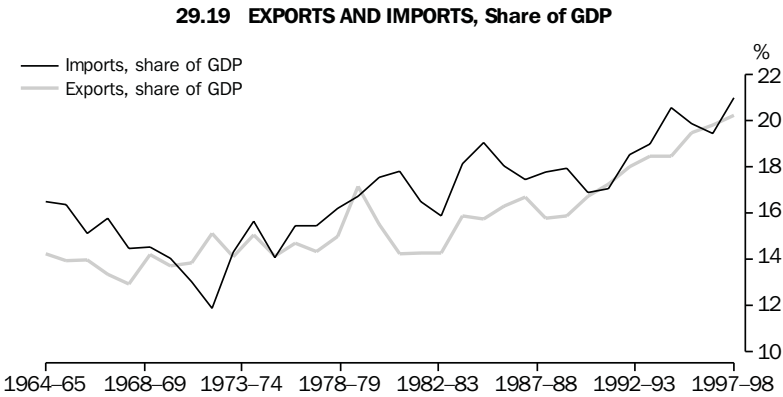
Source: Australian System of National Accounts (5204.0).

Australia has generally been a net borrower of funds from overseas. In the national accounts, this situation is reflected by a negative value for net lending to non-residents. Australia was a net lender to non-residents in 1972–73. Net borrowing from non-residents, expressed as a proportion of GDP, increased significantly during the early 1980s and has remained at relatively high levels since then. Graph 29.18 shows net lending to non-residents as a proportion of GDP since 1964–65.

The importance of foreign trade to the Australian economy is illustrated by graph 29.19, which shows the ratios of exports and imports of goods and services to GDP for the financial years 1964–65 to 1997–98. In 1997–98 the import ratio was 21.0% and the export ratio was 20.2%.



Source: Australian System of National Accounts (5204.0).



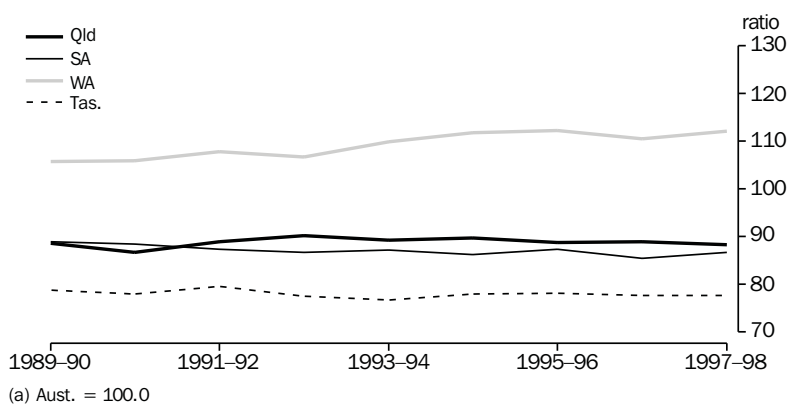
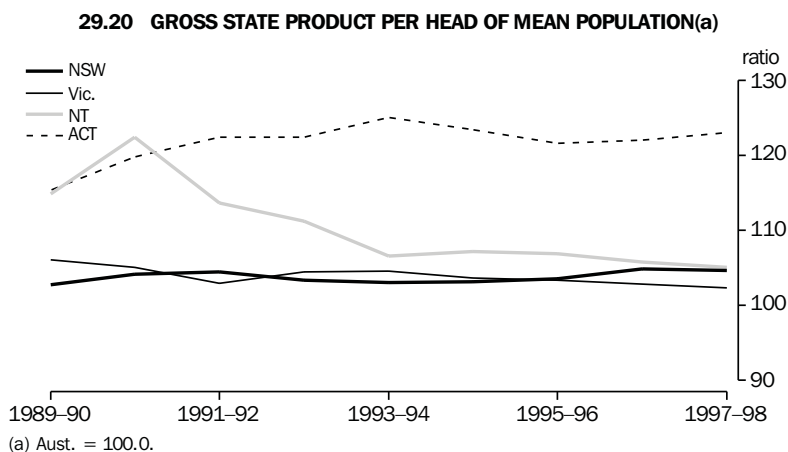
Source: Australian System of National Accounts (5204.0).

## State accounts

As well as Australia's national accounts, the ABS produces annual accounts for each of Australia's States and Territories each year. These provide estimates of gross State product (GSP) and State final demand. GSP is produced by summing the incomes generated in the production process (the income approach to measuring total production). State final demand is equal to the sum of government and household final consumption expenditure and government and private gross fixed capital formation. Estimates of State final demand and GSP are available in both current price and chain volume terms. The chain volume GSP estimates are experimental.

An important use of State accounts is to compare the performance of each State and Territory. Graph 29.20 shows the ratio of GSP, in current prices, per head of mean population for each State and Territory to the Australian value (GDP per head of mean population) since 1989–90.

For New South Wales, Victoria, Western Australia, the Northern Territory and the Australian Capital Territory, GSP per head of mean population in 1997–98 was above the national average. For Queensland, South Australia and Tasmania, GSP per head of mean population has been below the national average for the whole length of the time series (i.e. since 1989–90).



Source: Australian National Accounts: State Accounts (5220.0).

## Input-output tables

### Basic structure

Input-output (I-O) tables show the structure of a country's entire production system for a particular period, usually one year. They show which goods and services are produced by each industry and how they are used (e.g. some goods, such as cars, are sold to final consumers while others, such as steel, are used as inputs by other industries in producing more goods and services). The tables are based on the principle that the value of the output of each industry can be expressed as the sum of the values of all the inputs to that industry plus any profits made from production plus any taxes on production paid less any subsidies received. All the goods and services produced in a period are identified as being used as inputs by industries in their production process, being sold to final users of the goods and services (either in Australia, or overseas as exports), or contributing to the change in inventories (an increase in inventories if more goods are produced than purchased, or a run-down in inventories if purchases exceed production). For the production system as a whole, the sum of all outputs must equal the sum of all inputs and, for the economy as a whole, total supply must equal total demand (inventories provide the mechanism which balances supply and demand).

### Relationship to the national income and expenditure accounts

I-O tables are directly related to the gross domestic product account. The income side of the gross domestic product account shows the amount of income generated in the economy accruing to labour (in the form of compensation of employees) and to capital (as profits or, in national accounting terms, gross operating surplus and gross mixed income—the latter including some return to owners of businesses for their labour). The expenditure side of the account shows the value of goods and services entering into the various categories of final demand.

The I-O tables provide a much more detailed disaggregation of the gross domestic product account than is available in the national income, expenditure and product accounts. The latter only shows details of the end results of economic activity, whereas the I-O tables show the flows of goods and services through the production process. The extra detail provided by the I-O tables is essential for many analyses.

### Input-output table for seven industry sectors

Table 29.21 and diagram 29.22 show the flows of goods and services in respect of 1994–95.

The links between the table and the diagram are explained by working through the following formulas.

*Intermediate usage* (\$443,966m) in the diagram is derived by summing from column 8 of the table: intermediate usage (\$388,099m); competing imports (\$55,512m); and complementary imports (\$355m).

*Gross value added* (\$473,463m) in the diagram is derived by summing from column 14 of the table: compensation of employees (\$226,904m); gross operating surplus and mixed income (\$191,810m); taxes less subsidies on products (\$35,651m); and other taxes less subsidies on production (\$19,098m).

*Domestic production* (\$917,429m) in the diagram is derived by summing: intermediate usage from column 8 of the table (\$388,099m); total final demand at basic values from column 13 (\$503,963m); and the indirect taxes payable on those final demand items (also from column 13): taxes less subsidies on products (\$22,677m), and other taxes less subsidies on production (\$2,690m).

*Imports* (\$97,654m) in the diagram is derived by summing from column 14 of the table: competing imports (\$97,075m) and complementary imports (\$579m).

*Total supply* (\$1,015,083m), which equals total demand, is the sum of domestic production (\$917,429m) and imports (\$97,654m).

*Domestic final demand* (\$483,463m) in the diagram is derived from the table by subtracting total exports (\$87,654m), column 12, from total final demand (\$571,117m), column 13.

*Exports* (\$87,654m) in the diagram is total exports, column 12 in the table.

*Total demand* (\$1,015,083m), which equals total supply, is the sum of domestic final demand (\$483,463m), intermediate usage (\$443,966m), and exports (\$87,654m).

**29.21 INDUSTRY BY INDUSTRY FLOW MATRIX, Basic Values—1994–95**

	1	2	3	4	5	6	7
	Agriculture	Mining	Manufacturing	Construction	Trade and transport	Service industries	Public admin. and defence
	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Supply	3 624	13	14 529	64	399	1 439	44
Agriculture	59	2 348	9 942	781	236	2 766	128
Mining	3 822	2 617	47 431	16 566	15 771	19 928	3 696
Manufacturing	238	202	48	58	509	2 376	713
Construction	2 938	3 402	21 609	4 033	18 183	14 150	2 247
Trade and transportation	3 262	4 209	17 549	6 976	42 076	83 002	7 225
Service Industries	67	148	740	179	1 291	1 359	3 107
Public admin. and defence	14 010	12 940	111 849	28 656	78 465	129 059	17 160
Intermediate usage	3 468	4 909	33 127	13 325	43 426	111 740	16 909
Compensation of employees	9 482	15 058	25 349	11 935	23 079	104 547	2 359
Gross operating surplus and gross mixed income	556	186	1 729	642	4 178	5 386	297
Taxes on products (net)	491	521	3 011	824	18 585	9 679	24
Taxes on production (net)	1 804	2 218	25 956	3 041	6 527	14 238	1 999
Competing imports	0	0	355	0	0	0	0
Complementary imports							
<b>Australian production</b>	<b>29 811</b>	<b>35 833</b>	<b>201 376</b>	<b>52 100</b>	<b>157 262</b>	<b>370 609</b>	<b>38 749</b>

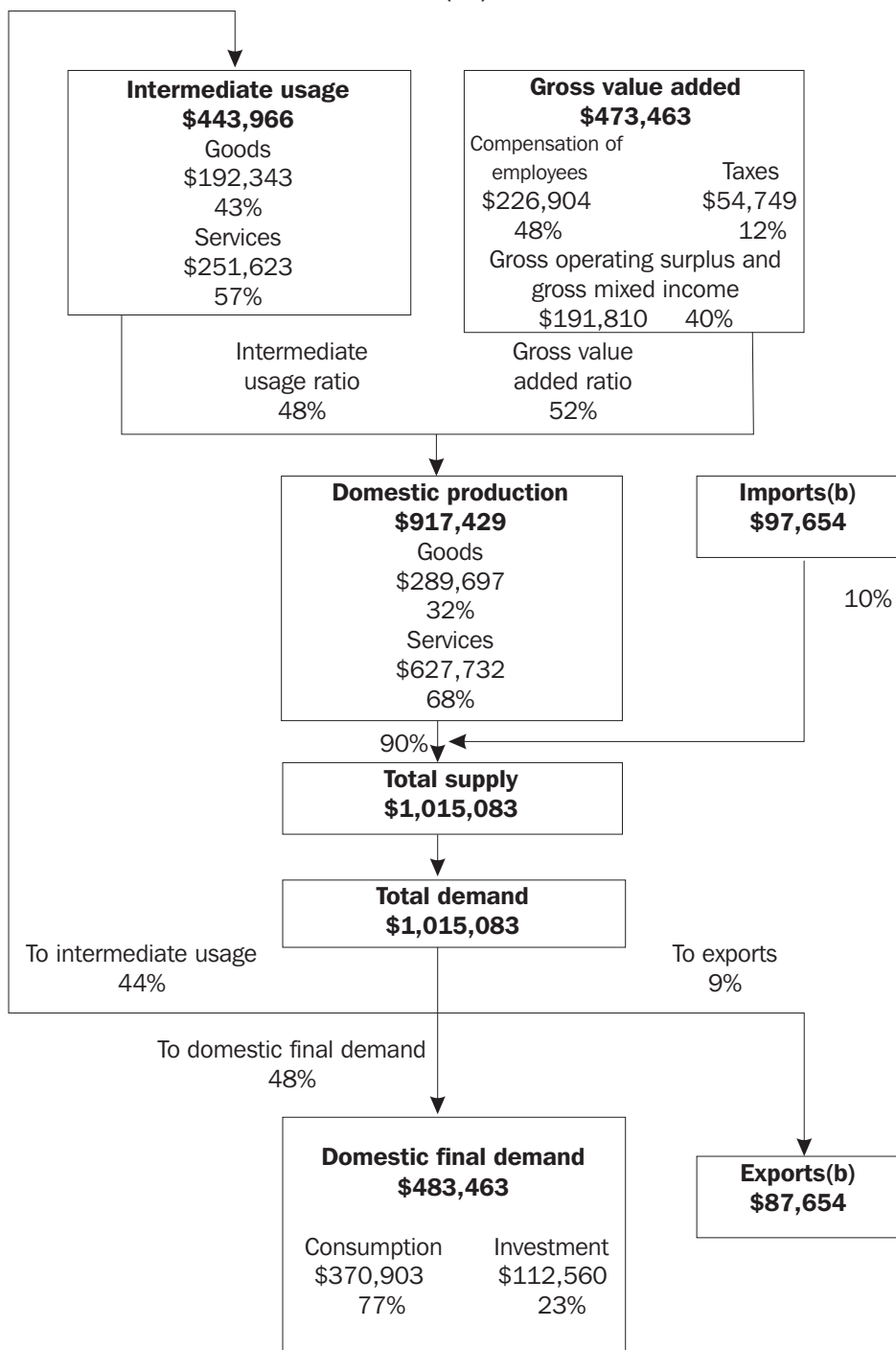
  

	8	9	10	11	12	13	14
	Intermediate usage = Sum (1 to 7)	Final consumption expenditure	Gross fixed capital expenditure	Increase in inventories	Exports	Final demand = Sum (9 to 12)	Total supply = Sum (8+13)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Supply	20 113	4 301	638	-632	5 391	9 698	29 811
Agriculture	16 259	474	1 802	-1 532	18 830	19 574	35 833
Mining	109 832	43 499	12 985	1 772	33 287	91 544	201 376
Manufacturing	4 145	2 245	51 911	2	121	54 278	58 423
Construction	66 563	62 115	11 457	380	16 747	90 699	157 262
Trade and transportation	164 298	188 079	9 423	4	8 806	206 312	370 610
Service Industries	6 890	31 334	341	—	183	31 857	38 747
Public admin. and defence	388 099	332 047	88 557	-6	83 365	503 963	892 062
Intermediate usage	226 904	—	—	—	—	—	226 904
Wages, salaries, supplements	191 810	—	—	—	—	—	191 810
Gross operating surplus and gross mixed income	12 974	17 971	3 112	134	1 461	22 677	35 651
Taxes on products (net)	16 408	—	2 690	—	—	2 690	19 098
Taxes on production (net)	55 512	20 795	16 167	1 773	2 828	41 563	97 075
Competing imports	355	91	126	7	—	224	579
Complementary imports							
<b>Australian production</b>	<b>892 063</b>	<b>370 903</b>	<b>110 652</b>	<b>1 908</b>	<b>87 654</b>	<b>571 117</b>	<b>1 463 179</b>

Source: Derived from Australian National Accounts: Input-Output Tables (5209.0).



**29.22 THE AUSTRALIAN ECONOMY, Flow of Goods and Services(a)**  
(\$m)



(a) Flows are based on 1994–95 input-output tables. (b) Includes re-exports.  
Source: Derived from Australian National Accounts: Input-Output Tables (5209.0).

## Financial accounts

In addition to the national accounts, the ABS produces quarterly information on the levels of financial assets and liabilities of each institutional sector of the economy, the market for financial instruments and inter-sectoral transactions in financial assets and liabilities classified by financial instrument (see *Chapter 26, Financial system*). National and sectoral financial accounts, which show major financial aggregates, are published in *Australian System of National Accounts* (5204.0).

## National balance sheet

The national balance sheet provides estimates of the value of Australia's produced, non-produced and financial assets, its liabilities to the rest of the world, and the net worth (defined as the difference between total assets and liabilities, including the value of equity in Australian enterprises owned by non-residents) of the total economy. The major national and sectoral balance sheet tables are published in *Australian System of National Accounts* (5204.0) and more detailed statistics are published in *Australian National Accounts: National Balance Sheet* (5241.0.40.001). Balance sheets are provided for each of the four domestic sectors: non-financial corporations, financial corporations, general government and households (and unincorporated enterprises).

The non-produced assets included in the balance sheet cover experimental estimates of the value of some of Australia's natural resources: sub-soil assets, timber available for log production and land. The monetary estimates of natural resources contained in the balance sheet are underpinned by physical estimates of particular natural resources. The monetary estimates of the natural resources should be considered in conjunction with the physical estimates provided.

Valuation of natural resources is a difficult and contentious undertaking. The ABS continues to work with agencies, in Australia and abroad, to explore the best approaches to the measurement of the physical resources as well as the valuation of these resources, but it will be some time before there is an agreed approach. For this reason the estimates of natural resources presented in the balance sheet are considered to be experimental.

The natural resource estimates are used to monitor the availability and exploitation of these resources and to assist in the formulation of environmental policies. More generally, data on the level, composition and change in assets and liabilities shown in the balance sheet indicate the extent of economic resources available to and claims on a nation and each of its institutional sectors.

Sectoral balance sheets provide information necessary for analysing a number of topics. Examples include: determining household liquidity; and the computation of widely used ratios, such as assets to liabilities, net worth to total liabilities, non-financial to financial assets, and debt to income. In a period of concern about the level of saving in Australia, national and sector balance sheets provide additional information on the relationships between consumption, saving and wealth accumulation.

The ABS will continue to develop estimates of the value of Australia's assets for inclusion in national balance sheets as additional data become available. Estimation techniques will be refined as research in Australia and abroad explores issues relating to the valuation of natural resources. Development work is being undertaken on estimating non-produced intangible assets, such as patents and goodwill; they may be included in the national balance sheet in future years.

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## Introduction

This chapter presents statistics on Australia's international accounts, covering exports and imports of goods, international trade in services, international investment transactions, and the levels of Australia's foreign financial assets and liabilities.

These statistics are used by economic analysts and policy advisers to monitor, evaluate and forecast developments in Australia's external trade and external sector accounts for the purposes of domestic and international macroeconomic analysis and policy determination. They are also used by governments, government agencies, businesses, industry associations, research institutions and others to analyse patterns of trade and assess particular types of transactions and financial claims and liabilities between Australian residents and non-residents, for purposes such as trade promotion and negotiations, market and industry performance studies, etc.

Transaction changes measured in the financial account of the balance of payments are identical to the transactions measured in the international investment position.

## International accounts

International accounts statistics cover the closely related and integrated statistics on Australia's balance of payments and international investment position. Diagram 30.1 presents the broad structure and relationship of these statistics.

Australia's balance of payments provides a statistical statement that systematically summarises the economic transactions between residents of Australia and residents of other countries. 'Residents', who may be people or businesses, need not be Australian nationals. Transactions cover the provision (changes in ownership) of goods, services, income, and financial claims on and liabilities to the rest of the world, and entries (such as gifts) classified as transfers that offset the provision of real and financial resources without anything provided in exchange.

Statistics about Australia's international investment position provide the balance sheet of the stock of foreign financial assets and liabilities of Australian residents. They integrate the balance sheet positions with information on increases and decreases in the levels of these assets and liabilities as a result of the changes due to transactions (investment flows, including reinvestment of earnings) as shown in the financial account of the balance of payments, together with the other changes that affect either the value of the stock (price, exchange rate) or the volume (other adjustments) of the stock of financial assets and liabilities.

## Foreign ownership in Australia

Statistics of foreign ownership in Australia presented in this chapter use levels data from Australia's international investment position to estimate the foreign ownership of equity in Australian enterprises.

## International merchandise trade

International merchandise trade statistics cover all movable goods which add to (imports) or subtract from (exports) Australia's stock of material resources. The statistics are compiled from information submitted by importers and exporters to the Australian Customs Service. Some goods are excluded for conceptual or practical reasons, for example those goods temporarily brought to Australia for subsequent forwarding to foreign destinations, and low-value imports and exports in the parcel post system.

The data about merchandise exports and imports are used in the compilation of the balance of payments. However, various adjustments relating to coverage, timing, classification and (for imports only) valuation are necessary before international merchandise trade statistics can be put on a balance of payments basis. Therefore, the merchandise exports and imports statistics, and the excess of exports (+) or imports (–), shown in the *International trade* section of this chapter, will differ from those shown in the *International accounts* section.

### 30.1 RELATIONSHIP BETWEEN THE BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION STATEMENTS

<b>Balance of Payments</b>				
<b>CURRENT ACCOUNT</b> <b>Goods</b> Credits Debits <b>Services</b> Credits Debits <b>Income</b> Credits Debits <b>Current transfers</b> Credits Debits <b>Balance on Current Account</b>				
<b>CAPITAL ACCOUNT</b> Capital transfers Acquisition/disposal of non-produced, non-financial assets <b>Balance on Capital Account</b>				
<b>International Investment Position</b>	<b>Position at Beginning of Period</b>	<b>FINANCIAL ACCOUNT</b>		
		<b>Transaction Changes</b>		
		<b>Other Changes in Position Reflecting...</b>		
		Price Changes	Exchange Rate Changes	Other Adjustments
<b>Australian Investment Abroad</b> Direct investment Portfolio investment Other investment Reserve assets  <b>Foreign Investment in Australia</b> Direct investment Portfolio investment Other investment  <b>Net International Investment Position</b>		<b>Position at End of Period</b>  <b>Australian Investment Abroad</b> Direct investment Portfolio investment Other investment Reserve assets  <b>Foreign Investment in Australia</b> Direct investment Portfolio investment Other investment  <b>Net International Investment Position</b>		
		<b>Net errors and omissions</b> (the sum, with sign reversed, of the balances on the current, capital and financial accounts)		

Investment income from International Investment



## International accounts

### Conceptual framework

Australia's international accounts statistics, which cover both the balance of payments and the international investment position, are compiled in accordance with international statistical standards. In this edition of *Yearbook Australia* the data are compiled in accordance with the Fifth Edition of the International Monetary Fund's Balance of Payments Manual (BPM5). The concepts of residency, transactions, valuation and time of recording are common to the balance of payments and international investment position statistics.

The balance of payments accounts, which present systematically the economic transactions between Australia and the rest of the world, incorporate four types of economic transactions. The first involves the provision of real resources, i.e. transactions in goods, services and income. The second involves the provision of financial resources, i.e. foreign financial assets and liabilities. The third covers those one sided transactions of a current nature (described as current transfers) that are offsets to transactions in current real or financial resources that are undertaken without an exchange. Current resources are not associated with, nor finance, fixed assets. For example, famine relief, whether in cash or in kind, would have its offset in current transfers. The fourth type is capital transfers that offset transactions which are undertaken, without exchange, in fixed assets or in their financing (such as development aid). For example, migrants' funds represent the shift of the migrants' net worth to or from Australia, and are classified as capital transfers.

The first and third of these types of transactions comprise the current account, while the second type comprises the financial account. The fourth type (capital transfers), together with a minor item for the acquisition and disposal of non-produced, non-financial assets (such as patents), comprises the capital account.

The double entry accounting system is used for recording balance of payments transactions. Under this system, credit entries, which are shown with no arithmetic sign, are used to record the provision of real or financial resources. Credit entries are therefore required for exports of goods and services, and for income earned by residents (a return for providing the use of financial capital to non-residents, or for providing the labour of Australian residents). Credit entries

are also required for providing financial resources to the rest of the world, either as new liabilities (such as issuing bonds), or through returning existing foreign assets (such as selling foreign equity securities to non-residents). Therefore, any credit entry in the financial account will reflect either an increase in Australia's foreign liabilities (more foreign debt or foreign ownership), or a decrease in Australia's foreign financial assets (such as a run-down in foreign exchange reserves).

Conversely, debit entries, which are identified by a minus sign (–), are used to record the provision by the rest of the world of real or financial resources to Australia, and are shown against imports of goods and services, income earned from Australia by non-residents, and financial transactions involving either an increase in foreign financial assets or a decrease in foreign liabilities.

Transactions in a double entry accounting system are reflected in pairs of equal credit and debit entries. For example, an export transaction for which payment is received through the banking system involves a credit entry for providing the good to a non-resident and a debit entry for being provided with foreign exchange assets due as payment for the export. Any entries that are not automatically paired in a transaction, i.e. for which there is no 'quid pro quo', are matched by special offsetting entries. Such offsetting entries are made in the categories 'current transfers' (when offsetting the provision of current resources such as food for famine relief) and 'capital transfers' (when offsetting the provision of capital resources such as development aid to build a new dam).

In principle, the net sum of all credit and debit entries is zero. In practice, some transactions are not measured accurately (errors), while others are not measured at all (omissions). Equality between the sums of the credit and debit entries is then brought about by the inclusion of a 'net errors and omissions' item which balances the accounts.

Transactions and other changes should be valued in the balance of payments at market prices. However, for practical reasons, transactions are generally valued in the statistics at transaction prices as this basis provides the closest practical approximation to the market price principle.

Transactions and other changes recorded in the balance of payments should be recorded at the time of change of ownership (either actual or



imputed). For current account transactions, this occurs when ownership of goods changes, or services are provided. Investment income is recorded on a full accrual basis, that is, when it is earned. Reinvested earnings are calculated for the earnings of the period of account, using current replacement cost estimates of depreciation and excluding holding gains and losses. Current and capital transfers should be recorded when the goods, services, cash, etc., to which they are offsets, change ownership. Those transfers, such as taxes and fines, which are imposed by one party on another, should ideally be recorded at the time of the occurrence of the underlying transactions or other flows or events that give rise to the liability to pay. For the financial account transactions, the time of recording is at the change of ownership of the financial claims, which by convention is the time at which transactions are entered in the books of the transactors.

In practice, the nature of the available data sources is such that the time of recording of transactions will often differ from the time of change of ownership. Where practical, timing adjustments are made for transactions to ensure that they are recorded in the time period in which change of ownership occurs.

International investment position statistics provide information on the levels (stock) of Australia's foreign financial assets and liabilities. The investment position at the end of a period reflects the foreign financial asset and liability positions at the start of the period, and the financial transactions (investment flows) from the balance of payments which increase or decrease these assets and liabilities, together with the non-transaction changes due to exchange rate effects, other price effects and changes in the volume of these assets and liabilities that are not due to transactions (such as debt write-off).

While the international investment position statistics form an integral part of Australia's balance of payments (see diagram 30.1), they are also useful in their own right, for example in determining the impact of foreign investment policies and the level of Australia's foreign assets and liabilities, including foreign debt. They are also useful when analysing the behaviour of financial markets.

As with the balance of payments, market price is the principal method of valuation in international investment position statistics, and financial assets and liabilities are recognised on a change of ownership basis, that is, at the time when the

foreign financial asset or liability is acquired, sold, repaid or otherwise disposed of. By convention, this is generally taken to be the time at which the event is recorded in the books.

## Classifications

In the following tables, global estimates of the current, capital and financial accounts of Australia's balance of payments are presented. Current and capital account transactions are generally recorded gross. This means that, for each item in the current and capital accounts, the credit entries are recorded separately from the debit entries. For example, goods credits are shown separately from goods debits. For each item in the financial account, however, debit and credit transactions are combined to produce a single result for the item which may be either a net credit or a net debit. For example, in a given period, non-resident purchases of shares issued by companies in Australia (credit) are netted against sales of Australian shares to residents by non-residents (debit) and the net result is recorded in the financial account as either a net credit or a net debit.

The current account records transactions between Australian residents and non-residents in goods, services, income and current transfers. Goods are classified into five main components—general merchandise; goods for processing; goods procured in ports by carriers; repairs on goods; and non-monetary gold. Changes of ownership from residents to non-residents are recorded as credits (also referred to as exports), and changes from non-residents to residents are recorded as debits (also referred to as imports). Services, comprising 11 primary components, cover services provided by Australian residents to non-residents (credits) and by non-residents to residents (debits), together with transactions in a few types of goods (for example, goods purchased by travellers). Income, comprising investment income (for example, dividends and interest) and compensation of employees (for example, wages), covers income earned by Australian residents from non-residents (credits) or earned by non-residents from residents (debits). Current transfers cover the offsetting entries required when resources are provided, without something of economic value being received in return. When non-residents provide something to Australian residents, offsetting credits are required; when residents provide resources to non-residents, offsetting debits are required. General

government transfers (for example, official foreign aid) are distinguished from transfers by other sectors.

The capital account covers capital transfers (such as migrants' funds), distinguished between general government and other sectors, and the acquisition/disposal of non-produced, non-financial assets.

The financial account shows transactions in foreign financial assets and liabilities. The primary split is by functional type of capital (direct investment, portfolio investment, other investment and reserve assets) further split into assets and liabilities (where appropriate). Within the asset and liability categories, details are presented of instruments of investment and resident sectors (for other than direct investment), and in some cases the contractual maturity of the instruments used.

The primary distinction used in international investment position statistics is between assets and liabilities. Assets primarily represent Australian investment abroad, and liabilities represent foreign investment in Australia. The difference between the two represents the net international investment position (see graph 30.11 and table 30.12). Australian investment abroad refers to the stock of foreign financial assets owned by Australian residents, after netting off any liabilities of Australian direct investors to their direct investment enterprises abroad. Conversely, foreign investment in Australia refers to the stock of financial assets in Australia owned by non-residents, after netting off any claims of Australian direct investment enterprises on their foreign direct investors. The first breakdown below this asset/liability dichotomy is by functional type of capital, with details of the instruments of investment (see table 30.14), the resident sectors and contractual maturities involved.

While many types of instruments of investment can be identified, for analytical reasons and ease of reporting, similar instruments are combined. Some of those instruments are:

- Equity capital, which includes ordinary and participating preference shares, units in trusts and net equity in branches.
- Reinvestment of earnings of direct investors, which refers to income retained within the enterprise from after-tax profits that is attributable to direct investors.

- Debt securities, which include longer term, generally tradable security instruments such as bonds and debentures, with a contractual maturity of more than one year after issue, together with money market instruments (for example, bills, commercial finance paper, negotiable certificates of deposit) with a contractual maturity of one year or less.
- Trade credits cover the direct extension by suppliers and buyers for goods and services, including advances for work in progress or to be undertaken.
- Loans cover the direct lending of funds either without a security evidencing the transaction, or with non-negotiable documentation. They include financial leases.
- Deposits comprise both transferable and other deposits.
- Other assets and liabilities consist of miscellaneous accounts in respect of interest, dividends, etc.

### Statistical overview

As shown in table 30.2, the balance on current account for 1998–99 was a deficit of \$32.4b, an increase of \$9.6b (42%) on the deficit recorded for 1997–98. The increase in the deficit in 1998–99 was due principally to the increase in the deficit on goods, up \$9.3b to a deficit of \$12.9b. The net services deficit rose \$0.9b to \$2.1b in 1998–99, with increases in all broad services debits categories. The net income deficit for 1998–99 fell \$0.4b (2%) to \$17.5b, with an increase in income credits of \$0.4b (3%) to \$10.7b and income debits remaining steady at \$28.3b.

The surplus on capital account rose \$0.1b (6%) to \$1.2b in 1998–99.

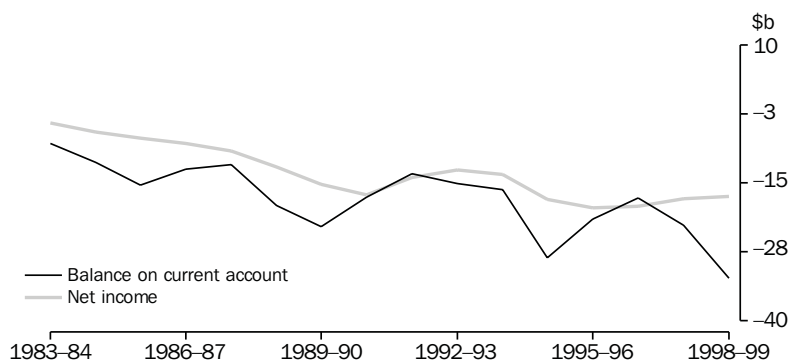
The balance on financial account recorded a net inflow of \$30.5b, up \$9.0b (42%) on the previous year. There was an increase of \$11.6b in the net inflow on direct investment, with a fall in the outflow on Australian investment abroad of \$3.8b and a rise in the inflow of direct investment in Australia of \$7.9b. There was also a rise of \$5.5b in the net inflow on other investment. Partly offsetting these movements was a fall of \$8.2b in portfolio investment.

## 30.2 BALANCE OF PAYMENTS, Summary

	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Current account</b>	<b>-16 254</b>	<b>-28 646</b>	<b>-21 645</b>	<b>-17 818</b>	<b>-22 776</b>	<b>-32 417</b>
<i>Goods and services</i>	-2 381	-10 000	-1 983	1 570	-4 746	-14 933
Credits	83 015	87 654	99 095	105 160	113 829	111 603
Debits	-85 396	-97 654	-101 078	-103 590	-118 575	-126 536
<i>Goods</i>	-444	-8 216	-1 583	1 496	-3 546	-12 860
Credits	64 419	67 101	76 146	80 934	88 538	85 655
Debits	-64 863	-75 317	-77 729	-79 438	-92 084	-98 515
<i>Services</i>	-1 937	-1 784	-400	74	-1 200	-2 073
Credits	18 596	20 553	22 949	24 226	25 291	25 948
Debits	-20 533	-22 337	-23 349	-24 152	-26 491	-28 021
<i>Income</i>	-13 534	-18 118	-19 533	-19 307	-17 955	-17 534
Credits	5 780	6 941	7 140	8 563	10 384	10 744
Debits	-19 314	-25 059	-26 673	-27 870	-28 339	-28 278
<i>Current transfers</i>	-339	-528	-129	-81	-75	50
Credits	3 112	3 026	3 292	3 497	3 976	4 093
Debits	-3 451	-3 554	-3 421	-3 578	-4 051	-4 043
<b>Capital and financial account</b>	<b>14 645</b>	<b>28 610</b>	<b>22 320</b>	<b>17 309</b>	<b>22 631</b>	<b>31 716</b>
<i>Capital account</i>	317	572	1 074	1 317	1 127	1 197
<i>Capital transfers</i>	300	540	1 049	1 323	1 097	1 189
Credits	1 058	1 383	1 956	2 200	2 068	2 197
Debits	-758	-843	-907	-877	-971	-1 008
<i>Net acquisition/disposal of non-produced, non-financial assets</i>	17	32	25	-6	30	8
<i>Financial account</i>	14 328	28 038	21 246	15 992	21 504	30 519
<i>Direct investment</i>	997	4 081	4 846	4 901	1 051	12 686
Abroad	-3 910	-3 428	-7 955	-5 726	-6 405	-2 640
In Australia	4 907	7 509	12 801	10 627	7 456	15 326
<i>Portfolio investment</i>	18 443	18 377	25 934	16 084	15 996	7 827
<i>Other investment</i>	-4 075	3 609	-8 717	210	5 039	10 574
<i>Reserve assets</i>	-1 037	1 971	-817	-5 203	-582	-568
<b>Net errors and omissions</b>	<b>1 609</b>	<b>36</b>	<b>-675</b>	<b>509</b>	<b>145</b>	<b>701</b>

Source: Balance of Payments and International Investment Position, Australia (5302.0).

## 30.3 BALANCE ON CURRENT ACCOUNT COMPARED TO NET INCOME



Source: Balance of Payments and International Investment Position, Australia (5302.0).

Graph 30.3 illustrates the importance of net income to the balance on current account. The net income deficit in the early 1980s accounted for less than half the current account deficit, and increased to about 79% of the current account

deficit from 1990–91 through to 1997–98. In 1998–99 the net income deficit accounted for 54% of the current account deficit, down significantly due to the increase in the deficit on goods which accounted for 40%.

## 30.4 RESERVE ASSETS AND EXCHANGE RATES

	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
RESERVE ASSETS (\$m)						
<b>Total reserve assets</b>	<b>20 661</b>	<b>20 184</b>	<b>19 059</b>	<b>22 791</b>	<b>25 448</b>	<b>25 221</b>
Monetary gold	4 208	4 316	3 826	1 757	1 236	1 013
Special drawing rights	110	95	57	37	25	88
Reserve position in IMF	749	753	615	627	1 449	2 338
Foreign exchange	15 594	15 020	14 562	20 370	22 738	21 782
Currency and deposits	n.a.	n.a.	n.a.	-4 572	-11 675	n.y.a.
Securities	n.a.	n.a.	n.a.	-15 798	-11 063	n.y.a.
EXCHANGE RATES						
End of period						
United States dollar	0.7291	0.7086	0.7890	0.7455	0.6135	0.6596
United Kingdom pound	0.4721	0.4452	0.5099	0.4482	0.3681	0.4188
Euro	..	..	..	..	..	..
Japanese yen	72.20	60.08	86.48	85.20	86.16	79.66
Special drawing right	0.5026	0.4539	0.5476	0.5347	0.4617	0.4932
Period average(a)						
United States dollar	0.6919	0.7427	0.7593	0.7828	0.6808	0.6276
United Kingdom pound	0.4623	0.4705	0.4909	0.4851	0.4138	0.3824
Euro	..	..	..	..	..	..
Japanese yen	73.52	70.35	77.66	90.51	86.02	77.81
Special drawing right	0.4944	0.4972	0.5156	0.5521	0.5026	0.4589
TRADE-WEIGHTED INDEX OF VALUE OF THE AUSTRALIAN DOLLAR(b)						
End of period	53.0	48.4	58.1	56.7	57.9	58.4
Period average(a)	51.4	52.8	54.8	58.7	58.3	56.0

(a) These period average exchange rates and index numbers are derived by averaging figures for each trading day. (b) May 1970 = 100.0. The Trade Weighted Index is reweighted annually and on special occasions as required.

Source: Reserve Bank of Australia for reserve assets in respect of each trading day, exchange rates and the trade-weighted index.

Table 30.4 shows the annual levels of Australia's official reserve assets and both the end of year and period average exchange rates for the major currencies, special drawing rights, and the trade weighted index.

## International trade in goods and services (balance of payments basis)

Australia's international trade in goods and services for the six years to 1998–99 is shown in Tables 30.5 (exports or credits) and 30.6 (imports or debits). The tables provide both current price and chain volume measures.

The components of merchandise goods shown in tables 30.5 and 30.6 are defined in terms of groupings of items in the United Nations *Standard International Trade Classification Revision 3* (SITC Rev. 3) for credits, and the UN's *Classification of Broad Economic Categories*.

Chain volume measures of exports and imports remove the effects of inflation. They provide measures, in dollar values, which indicate changes in the actual volume of exports and imports. For more information on chain volume measures see the section *Chain volume or 'real' GDP* in *Chapter 29, National accounts*.

The current price value of a transaction may be expressed conceptually as the product of a price and quantity. The value of the transaction in chain volume measures may then be thought of as being derived by substituting, for the current price, the corresponding price in the chosen reference year.

There are, however, many transactions recorded in statistics of international trade in goods and services for which it is not possible to apply such an approach. In such cases it is necessary to make assumptions and approximations (e.g. revaluing by means of the price index which is considered to be most closely related to the commodity involved). The published chain volume measures should be viewed in this light.

The balance on goods and services recorded a deficit of \$14.9b in 1998–99 at current prices. Goods credits fell 3% to \$85.7b, with the largest decreases recorded in wool and sheepskins (down \$1.4b with both prices and volume falling),

machinery (down \$0.9b largely due to volume decline), other mineral fuels (down \$0.9b largely due to price falls) and non-monetary gold (down \$0.8b due to volume declining after some Reserve Bank gold sales in 1997–98).

Goods debits increased 7% to \$98.5b. The most significant increases occurred in consumption goods n.e.s. (up \$1.0b due to price and volume increases), processed industrial supplies n.e.s. (up \$0.8b), telecommunications equipment (up \$0.7b despite substantial price falls) and parts for transport equipment (up \$0.7b).

Exports and imports of merchandise goods, on a recorded trade basis without adjustment for balance of payments purposes, are shown by country in table 30.24.

In current price terms, the balance on services rose to \$2.1b in 1998–99. The only surplus in this series since 1945–46 was recorded in 1996–97 at \$0.1b.

In chain volume measures, after being in surplus for five of the six years to 1996–97, the balance on goods and services recorded its second successive deficit in 1998–99. Goods and services debits increased \$5.9b (5%) due to an increase of 6% in imports of goods. Goods and services credits increased \$1.9b (2%).

Table 30.7 presents various price indexes for Australia's trade in goods and services. The implicit price deflators (IPDs) are derived by dividing the current price measures by the corresponding chain volume measures. These IPDs reflect not only price change but compositional effects from year to year.

Unlike implicit price deflators, chain price indexes measure only the impact of a price change. The chain Laspeyres price index for goods and services credits fell 3.4% in 1998–99 to 96.6, around the average for the last 10 years. The fall results from declining commodity prices in 1998–99 despite a weaker Australian dollar. The chain Laspeyres price index for goods and services debits rose 2.6% in 1998–99 to 102.6, above the average for the last 10 years. Falling computer, telecommunications and oil prices partly offset the price increases arising from the weaker Australian currency.

## 30.5 GOODS AND SERVICES CREDITS

	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
	\$m	\$m	\$m	\$m	\$m	\$m
AT CURRENT PRICES						
<b>Goods and services credits</b>	<b>83 015</b>	<b>87 654</b>	<b>99 095</b>	<b>105 160</b>	<b>113 829</b>	<b>111 603</b>
<i>Goods credits</i>	64 419	67 101	76 146	80 934	88 538	85 655
General merchandise	58 301	61 539	69 609	73 379	80 571	78 198
Rural goods	17 130	17 315	19 588	21 045	22 130	21 863
Meat and meat preparations	4 043	3 654	3 292	2 957	3 731	4 007
Cereal grains and cereal preparations	3 205	2 523	4 926	5 954	5 094	5 041
Wool and sheepskins	3 369	4 216	3 664	3 744	4 020	2 588
Other rural	6 513	6 922	7 706	8 390	9 285	10 227
Non-rural goods	41 171	44 224	50 021	52 334	58 441	56 335
Metal ores and minerals	7 671	7 968	9 088	9 407	10 835	11 081
Coal, coke and briquettes	7 253	6 936	7 843	8 005	9 586	9 313
Other mineral fuels	3 351	3 794	4 165	5 154	5 309	4 456
Metals (excluding non-monetary gold)	5 396	6 097	6 799	6 054	7 185	6 939
Machinery	5 293	6 035	7 119	7 001	7 549	6 614
Transport equipment	2 087	2 047	2 500	3 649	3 412	3 353
Other manufactures	6 966	7 907	8 755	9 108	9 834	10 204
Other non-rural	3 154	3 440	3 752	3 956	4 731	4 375
Sugar, sugar preparations and honey	1 315	1 730	1 712	1 694	1 939	n.p.
Other	1 839	1 710	2 040	2 262	2 792	n.p.
Other goods	6 118	5 562	6 537	7 555	7 967	7 457
<i>Services credits</i>	18 596	20 553	22 949	24 226	25 291	25 948

## CHAIN VOLUME MEASURES(a)(b)

<b>Goods and services credits</b>	<b>85 858</b>	<b>90 039</b>	<b>99 317</b>	<b>109 700</b>	<b>113 829</b>	<b>115 766</b>
<i>Goods credits</i>	66 701	68 462	75 717	85 069	88 539	90 001
General merchandise	61 699	63 757	70 103	77 763	80 572	82 764
Rural goods	18 897	17 551	18 974	22 412	22 129	23 692
Meat and meat preparations	3 532	3 444	3 352	3 281	3 731	3 959
Cereal grains and cereal preparations	4 022	2 906	4 219	6 088	5 094	5 879
Wool and sheepskins	4 458	4 132	3 962	4 301	4 021	3 417
Other rural	7 045	7 063	7 611	8 716	9 285	10 438
Non-rural goods	42 964	46 266	51 205	55 358	58 441	59 072
Metal ores and minerals	9 096	9 547	10 114	10 686	10 835	11 171
Coal, coke and briquettes	7 698	8 071	8 261	8 638	9 585	9 955
Other mineral fuels	3 619	4 092	4 348	4 763	5 309	5 080
Metals (excluding non-monetary gold)	6 544	6 238	6 811	6 933	7 185	7 957
Machinery	4 268	5 126	6 521	6 927	7 549	6 882
Transport equipment	2 057	2 047	2 599	3 868	3 412	3 300
Other manufactures	6 920	7 876	8 677	9 399	9 834	10 204
Other non-rural	3 387	3 633	3 938	4 223	4 732	4 524
Sugar, sugar preparations and honey	1 406	1 757	1 754	1 815	1 939	n.p.
Other	1 970	1 865	2 181	2 410	2 793	n.p.
Other goods	5 087	4 888	5 753	7 337	7 967	7 237
<i>Services credits</i>	19 202	21 618	23 639	24 621	25 291	25 766

(a) Reference year for chain volume measures is 1997–98. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

## 30.6 GOODS AND SERVICES DEBITS

	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
	\$m	\$m	\$m	\$m	\$m	\$m
AT CURRENT PRICES						
<b>Goods and services debits</b>	<b>-85 396</b>	<b>-97 654</b>	<b>-101 078</b>	<b>-103 590</b>	<b>-118 575</b>	<b>-126 536</b>
<i>Goods debits</i>	-64 863	-75 317	-77 729	-79 438	-92 084	-98 515
General merchandise	-63 236	-73 620	-76 007	-77 205	-87 521	-94 545
Consumption goods	-17 233	-19 418	-19 860	-21 293	-25 899	-28 046
Food and beverages, mainly for consumption	-2 430	-2 592	-2 760	-2 879	-3 282	-3 609
Household electrical items	-1 436	-1 744	-1 766	-1 890	-2 062	-2 244
Non-industrial transport equipment	-3 800	-4 758	-4 436	-5 143	-7 102	-7 231
Textiles, clothing and footwear	-2 320	-2 566	-2 726	-2 880	-3 456	-3 741
Toys, books and leisure goods	-2 496	-2 545	-2 534	-2 567	-2 956	-3 183
Consumption goods n.e.s.	-4 751	-5 213	-5 638	-5 934	-7 041	-8 038
Capital goods	-14 843	-18 541	-19 183	-18 884	-21 168	-23 058
Machinery and industrial equipment	-6 414	-7 897	-8 326	-8 020	-8 862	-9 227
ADP equipment	-2 629	-3 232	-3 593	-3 719	-4 345	-4 495
Telecommunications equipment	-1 182	-1 804	-1 996	-1 748	-2 070	-2 815
Civil aircraft	-241	-529	-688	-784	-464	-649
Industrial transport equipment n.e.s.	-2 084	-2 714	-2 214	-2 178	-2 560	-2 859
Capital goods n.e.s.	-2 293	-2 365	-2 366	-2 435	-2 867	-3 013
Intermediate and other merchandise goods	-31 160	-35 661	-36 964	-37 028	-40 454	-43 441
Food and beverages, mainly for industry	-509	-774	-700	-641	-746	-760
Primary industrial supplies n.e.s.	-701	-901	-879	-839	-950	-882
Fuels and lubricants	-3 317	-3 566	-4 163	-5 004	-4 276	-4 469
Parts for transport equipment	-4 183	-4 714	-4 600	-4 609	-5 346	-6 085
Parts for ADP equipment	-1 681	-1 858	-1 857	-1 759	-1 993	-1 944
Other parts for capital goods	-5 047	-5 975	-6 393	-6 507	-7 193	-7 697
Organic and inorganic chemicals	-2 102	-2 431	-2 754	-2 743	-2 814	-3 140
Paper and paperboard	-1 465	-1 794	-1 868	-1 713	-1 901	-1 980
Textile yarn and fabrics	-1 869	-2 036	-1 922	-1 817	-2 005	-2 006
Iron and steel	-1 039	-1 285	-1 408	-1 297	-1 623	-1 470
Plastics	-1 375	-1 646	-1 685	-1 577	-1 814	-1 889
Processed industrial supplies n.e.s.	-7 586	-8 290	-8 398	-8 212	-9 431	-10 208
Other merchandise goods	-286	-391	-337	-310	-362	-911
Other goods	-1 627	-1 697	-1 722	-2 233	-4 563	-3 970
<i>Services debits</i>	-20 533	-22 337	-23 349	-24 152	-26 491	-28 021

...continued



## 30.6 GOODS AND SERVICES DEBITS—continued

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98
	\$m	\$m	\$m	\$m	\$m	\$m
CHAIN VOLUME MEASURES(a)(b)						
<b>Goods and services debits</b>	<b>-81 195</b>	<b>-94 633</b>	<b>-98 409</b>	<b>-108 070</b>	<b>-118 576</b>	<b>-124 518</b>
<i>Goods debits</i>	-59 655	-70 961	-73 986	-82 043	-92 083	-97 952
General merchandise	-58 164	-69 353	-72 381	-79 835	-87 521	-94 148
Consumption goods	-17 019	-19 528	-19 858	-22 279	-25 899	-26 791
Food and beverages, mainly for consumption	-2 668	-2 825	-2 877	-3 053	-3 282	-3 612
Household electrical items	-1 296	-1 656	-1 719	-1 976	-2 062	-2 196
Non-industrial transport equipment	-3 716	-4 537	-4 262	-5 311	-7 102	-6 926
Textiles, clothing and footwear	-2 287	-2 669	-2 874	-3 083	-3 456	-3 551
Toys, books and leisure goods	-2 624	-2 786	-2 702	-2 803	-2 956	-2 881
Consumption goods n.e.s.	-4 529	-5 113	-5 490	-6 078	-7 041	-7 627
Capital goods	-11 457	-15 246	-16 871	-19 229	-21 168	-23 819
Machinery and industrial equipment	-6 326	-7 986	-8 477	-8 719	-8 862	-8 483
ADP equipment	-1 080	-1 619	-2 274	-3 262	-4 345	-5 942
Telecommunications equipment	-619	-1 070	-1 358	-1 709	-2 069	-3 199
Civil aircraft	-264	-606	-817	-957	-465	-584
Industrial transport equipment n.e.s.	-2 096	-2 723	-2 220	-2 271	-2 560	-2 724
Capital goods n.e.s.	-2 229	-2 344	-2 360	-2 557	-2 868	-2 887
Intermediate and other merchandise goods	-30 221	-34 797	-35 683	-38 314	-40 454	-43 540
Food and beverages, mainly for industry	-797	-846	-788	-796	-745	-787
Primary industrial supplies n.e.s.	-846	-986	-905	-900	-950	-933
Fuels and lubricants	-3 558	-3 765	-4 336	-4 626	-4 277	-4 939
Parts for transport equipment	-4 062	-4 605	-4 522	-4 924	-5 345	-5 609
Parts for ADP equipment	-699	-938	-1 176	-1 542	-1 993	-2 550
Other parts for capital goods	-4 587	-5 630	-6 211	-6 908	-7 193	-7 519
Organic and inorganic chemicals	-2 333	-2 483	-2 675	-2 865	-2 814	-3 180
Paper and paperboard	-1 508	-1 900	-1 675	-1 779	-1 901	-1 831
Textile yarn and fabrics	-1 644	-1 848	-1 727	-1 894	-2 004	-2 059
Iron and steel	-1 028	-1 319	-1 333	-1 318	-1 623	-1 433
Plastics	-1 552	-1 793	-1 643	-1 674	-1 815	-1 913
Processed industrial supplies n.e.s.	-7 940	-8 701	-8 532	-8 763	-9 432	-9 903
Other merchandise goods	-284	-392	-332	-329	-362	-882
Other goods	-1 528	-1 647	-1 644	-2 253	-4 563	-3 804
<i>Services debits</i>	-21 887	-23 847	-24 581	-26 116	-26 492	-26 565

(a) Reference year for chain volume measures is 1997–98. (b) Chain volume measures are not additive for most periods; the component measures do not sum to a total in the same way as the corresponding current price components do.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).



## 30.7 IMPLICIT PRICE DEFLATORS AND TERMS OF TRADE

	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Implicit price deflators(a)(b)						
Goods and services credits	96.7	97.4	99.8	95.9	100.0	96.4
Goods credits	96.6	98.0	100.6	95.1	100.0	95.2
Services credits	96.8	95.1	97.1	98.4	100.0	100.7
Goods and services debits	105.2	103.2	102.7	95.9	100.0	101.6
Goods debits	108.7	106.1	105.1	96.8	100.0	100.6
Services debits	93.8	93.7	95.0	92.5	100.0	105.5
Chain laspeyres price indexes(b)						
Goods and services credits	94.9	96.5	98.9	95.7	100.0	96.6
Goods credits	94.8	97.1	99.6	94.9	100.0	95.4
Services credits	95.6	95.0	97.0	98.4	100.0	100.8
Goods and services debits	102.6	101.2	101.4	95.3	100.0	102.6
Goods debits	105.7	103.8	103.6	96.3	100.0	101.7
Services debits	93.4	93.3	94.7	92.2	100.0	105.6
Terms of trade(b)(c)						
Goods and services	91.9	94.3	97.1	100.0	100.0	94.9
Goods	88.8	92.3	95.7	98.3	100.0	94.6
Services	103.2	101.5	102.2	106.4	100.0	95.5

(a) 1997-98 = 100.0. Derived by dividing the estimates at current prices in tables 30.5 and 30.6 by the chain volume measures in those tables. (b) Reference year for price and terms of trade indexes is 1997-98. (c) 1997-98 = 100.0. Derived by dividing the IPDs for credits by the IPDs for debits.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

Australia's terms of trade fell 5.1% in 1998-99, resulting from a 3.6% fall in the implicit price deflator or IPD (current prices over chain volume measures) for goods and services credits, augmented by a 1.6% rise in the IPD for goods and services debits. For credits, the goods IPD fell 4.8% and the services IPD rose 0.7%. For debits the goods deflator rose 0.6% while the services deflator rose 5.5% (table 30.7).

### International trade in services

In current price terms, net services for 1998-99 recorded a deficit of \$2.1b, an increase of \$0.9b (73%) on the deficit recorded in 1997-98. Services credits increased by \$0.7b (3%) to \$25.9b, mainly due to increases in travel services, computer information services (principally technical services and intra-corporate management fees) and other business services credits. Services debits increased by \$1.5b (6%) to \$28.0b, mainly due to increases in travel, transportation and royalties and license fees debits. Table 30.8 provides details of the international trade in services.

As shown in table 30.9, the main destinations for services exports (credits) in calendar 1998 (the latest year available for regional data) were: United States (16%), Japan (11%), United Kingdom (10%), New Zealand (7%), Singapore (5%) and Hong Kong (5%). Significant growth has been recorded since 1992-93 in services exports to the United States, New Zealand, United Kingdom, Singapore, and Hong Kong. The main source countries for services debits in 1998, as shown in table 30.10, were: United States (20%), United Kingdom (12%), Japan (5%), Singapore (5%), New Zealand (5%) and Hong Kong (5%).

## 30.8 INTERNATIONAL TRADE IN SERVICES

	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
	\$m	\$m	\$m	\$m	\$m	\$m
CREDITS						
<b>Services credits</b>	<b>18 596</b>	<b>20 553</b>	<b>22 949</b>	<b>24 226</b>	<b>25 291</b>	<b>25 948</b>
Transportation services	5 974	5 985	6 526	6 648	6 720	6 885
Passenger	2 334	4 858	5 305	5 697	5 678	5 600
Freight	1 089	1 127	1 221	951	1 042	1 285
Other	2 551	n.p.	n.p.	n.p.	n.p.	n.p.
Travel services	8 274	9 956	11 252	11 756	11 499	11 782
Business	581	677	798	675	893	968
Personal	7 693	9 279	10 454	11 081	10 606	10 814
Communications services	780	808	896	947	1 378	1 140
Construction services	16	105	66	70	31	15
Insurance services	508	556	672	772	840	859
Financial services	586	526	577	634	713	716
Computer and information services	242	218	217	277	532	658
Royalties and licence fees	289	320	329	376	449	469
Other business services	1 194	1 340	1 613	1 882	2 224	2 456
Merchanting and other trade-related	143	256	331	436	481	527
Operational leasing	11	12	7	10	8	8
Miscellaneous business, professional and technical	1 040	1 072	1 275	1 436	1 735	1 921
Personal, cultural and recreational services	180	185	248	304	352	411
Government services n.e.i.	553	554	553	560	553	557
DEBITS						
<b>Services debits</b>	<b>-20 533</b>	<b>-22 337</b>	<b>-23 349</b>	<b>-24 152</b>	<b>-26 491</b>	<b>-28 021</b>
Transportation services	-6 925	-8 259	-8 488	-8 439	-9 125	-9 428
Passenger	-2 466	-2 721	-2 928	-3 003	-3 224	-3 558
Freight	-3 830	-4 360	-4 405	-4 373	-5 013	-5 005
Other	-629	-1 178	-1 155	-1 063	-888	-865
Travel services	-5 615	-6 272	-6 988	-7 769	-8 372	-8 884
Business	-1 413	-1 696	-2 056	-2 286	-2 416	-2 160
Personal	-4 202	-4 576	-4 932	-5 483	-5 956	-6 724
Communications services	-971	-1 020	-1 060	-1 066	-1 407	-1 465
Construction services	0	0	0	0	0	0
Insurance services	-1 036	-1 064	-1 064	-1 012	-915	-922
Financial services	-641	-672	-472	-451	-442	-468
Computer and information services	-195	-200	-203	-253	-336	-398
Royalties and license fees	-1 211	-1 283	-1 304	-1 397	-1 519	-1 756
Other business services	-2 843	-2 510	-2 646	-2 699	-3 003	-3 173
Merchanting and other trade-related	-204	-250	-276	-362	-392	-359
Operational leasing	-1 435	-1 041	-1 032	-814	-864	-1 009
Miscellaneous business, professional and technical	-1 204	-1 219	-1 338	-1 523	-1 747	-1 805
Personal, cultural and recreational services	-533	-519	-555	-547	-780	-894
Government services n.e.i.	-563	-538	-569	-519	-592	-633

Source: Balance of Payments and International Investment Position, Australia (5302.0).

## 30.9 SERVICES CREDITS, By Country and Country Group

	1993	1994	1995	1996	1997	1998
	\$m	\$m	\$m	\$m	\$m	\$m
COUNTRIES						
Belgium and Luxembourg	29	38	58	80	111	124
Brunei Darussalam	17	19	22	27	23	27
Canada	264	259	273	286	309	395
Central America and Caribbean	14	16	12	15	12	17
Chile	4	5	7	4	5	7
China, People's Republic of	281	350	383	381	435	492
Fiji	81	83	77	70	81	154
France	201	207	195	188	159	212
Germany	559	607	608	597	667	657
Greece	44	48	49	48	41	38
Hong Kong (SAR of China)	803	871	932	1 099	1 146	1 146
Indonesia	560	715	907	1 004	1 057	869
Ireland, Republic of	41	56	70	70	80	120
Italy	176	179	177	220	207	192
Japan	3 071	3 277	3 418	3 792	3 607	2 772
Korea, Republic of	444	661	980	1 080	969	468
Malaysia	532	653	740	750	793	837
Mexico	12	12	6	4	4	6
Netherlands	174	174	182	186	208	283
New Zealand	1 191	1 189	1 339	1 510	1 647	1 853
Papua New Guinea	253	247	247	259	304	364
Philippines	131	155	175	181	228	204
Russian Federation	79	78	69	65	59	55
Singapore	797	1 059	1 266	1 283	1 297	1 292
South Africa	125	138	164	172	174	240
Sweden	73	80	91	94	96	138
Switzerland	211	245	253	279	279	288
Taiwan	510	601	695	659	581	567
Thailand	326	427	526	516	419	391
United Kingdom	1 805	1 875	1 921	2 135	2 181	2 472
United States of America	2 313	2 375	2 741	3 024	3 545	4 080
Africa n.e.s.	142	126	102	98	118	134
America n.e.s.	71	102	123	241	285	319
Asia n.e.s.	574	676	850	901	1 032	1 192
Europe n.e.s.	730	737	694	623	744	817
Oceania n.e.s.	295	288	274	267	230	252
International institutions	4	4	4	3	1	0
Unallocated	629	762	1 146	1 493	1 778	2 186
<b>Total all countries</b>	<b>17 566</b>	<b>19 394</b>	<b>21 776</b>	<b>23 704</b>	<b>24 912</b>	<b>25 660</b>
COUNTRY GROUPS(a)						
APEC	11 378	12 872	14 657	15 859	16 369	15 770
ASEAN	2 416	3 084	3 702	3 866	3 954	3 739
EU	3 269	3 486	3 696	3 921	4 176	4 681
OECD	10 550	11 098	11 923	13 471	14 670	14 706

(a) APEC includes Brunei Darussalam, Canada, Chile (from 1995), Peoples' Republic of China, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, Mexico (from 1994), New Zealand, Papua New Guinea (from 1994), Philippines, Singapore, Taiwan, Thailand and United States of America. ASEAN includes Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam (from 1996). EU includes Austria (from 1995), Belgium, Denmark, Finland (from 1995), France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden (from 1995) and United Kingdom. OECD includes Austria, Belgium, Canada, Czech Republic (from 1996), Denmark, Finland, France, Germany, Greece, Hungary (from 1997), Iceland, Republic of Ireland, Italy, Japan, Republic of Korea (from 1997), Luxembourg, Mexico (from 1995), New Zealand, Netherlands, Norway, Poland (from 1997), Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States of America.

Source: Balance of Payments and International Investment Position, Australia (5363.0).

## 30.10 SERVICES DEBITS, By Country and Country Group

	1993	1994	1995	1996	1997	1998
	\$m	\$m	\$m	\$m	\$m	\$m
COUNTRIES						
Belgium and Luxembourg	-120	-108	-99	-75	-88	-95
Brunei Darussalam	-6	-7	-11	-7	-9	-10
Canada	-256	-300	-310	-312	-324	-287
Central America and Caribbean	-272	-244	-200	-179	-177	-203
Chile	-12	-17	-19	-20	-40	-42
China, People's Republic of	-301	-372	-459	-448	-536	-586
Fiji	-161	-176	-187	-181	-182	-247
France	-251	-257	-279	-278	-371	-351
Germany	-439	-463	-511	-503	-636	-793
Greece	-211	-252	-237	-216	-163	-111
Hong Kong (SAR of China)	-864	-915	-1 066	-1 143	-1 268	-1 241
Indonesia	-365	-436	-517	-620	-748	-619
Ireland, Republic of	-76	-89	-108	-142	-144	-155
Italy	-358	-358	-415	-493	-488	-408
Japan	-1 379	-1 550	-1 621	-1 507	-1 430	-1 495
Korea, Republic of	-182	-230	-284	-290	-275	-291
Malaysia	-383	-450	-509	-557	-687	-705
Mexico	-9	-11	-12	-13	-20	-16
Netherlands	-452	-487	-478	-387	-438	-559
New Zealand	-862	-898	-1 013	-1 128	-1 242	-1 402
Papua New Guinea	-129	-142	-149	-169	-203	-184
Philippines	-88	-100	-120	-130	-193	-177
Russian Federation	-229	-190	-134	-120	-33	-63
Singapore	-913	-1 051	-1 222	-1 274	-1 124	-1 405
South Africa	-66	-83	-120	-137	-176	-189
Sweden	-151	-146	-153	-107	-152	-127
Switzerland	-320	-406	-484	-518	-647	-689
Taiwan	-133	-138	-149	-163	-159	-151
Thailand	-367	-364	-410	-422	-434	-548
United Kingdom	-3 218	-3 420	-3 720	-4 037	-3 622	-3 391
United States of America	-4 115	-4 180	-4 517	-4 714	-5 405	-5 563
Africa n.e.s.	-146	-132	-146	-150	-185	-185
America n.e.s.	-115	-110	-135	-152	-261	-216
Asia n.e.s.	-622	-686	-699	-602	-718	-837
Europe n.e.s.	-898	-1 013	-1 101	-970	-1 043	-1 362
Oceania n.e.s.	-186	-173	-165	-157	-192	-213
International institutions	-1	-1	0	0	0	-1
Unallocated	-1 080	-1 156	-1 324	-1 434	-1 618	-2 647
<b>Total all countries</b>	<b>-19 736</b>	<b>-21 111</b>	<b>-23 083</b>	<b>-23 755</b>	<b>-25 431</b>	<b>-27 565</b>
COUNTRY GROUPS(a)						
APEC	-10 294	-11 155	-12 388	-12 917	-14 097	-12 402
ASEAN	-2 216	-2 525	-2 948	-3 214	-3 398	-3 268
EU	-5 410	-5 728	-6 386	-6 574	-6 429	-5 583
OECD	-12 776	-13 625	-14 745	-15 233	-16 059	-13 753

(a) APEC includes Brunei Darussalam, Canada, Chile (from 1995), Peoples' Republic of China, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, Mexico (from 1994), New Zealand, Papua New Guinea (from 1994), Philippines, Singapore, Taiwan, Thailand and United States of America. ASEAN includes Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam (from 1996). EU includes Austria (from 1995), Belgium, Denmark, Finland (from 1995), France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden (from 1995) and United Kingdom. OECD includes Austria, Belgium, Canada, Czech Republic (from 1996), Denmark, Finland, France, Germany, Greece, Hungary (from 1997), Iceland, Republic of Ireland, Italy, Japan, Republic of Korea (from 1997), Luxembourg, Mexico (from 1995), New Zealand, Netherlands, Norway, Poland (from 1997), Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States of America.

Source: Balance of Payments and International Investment Position, Australia (5363.0).

### International investment position

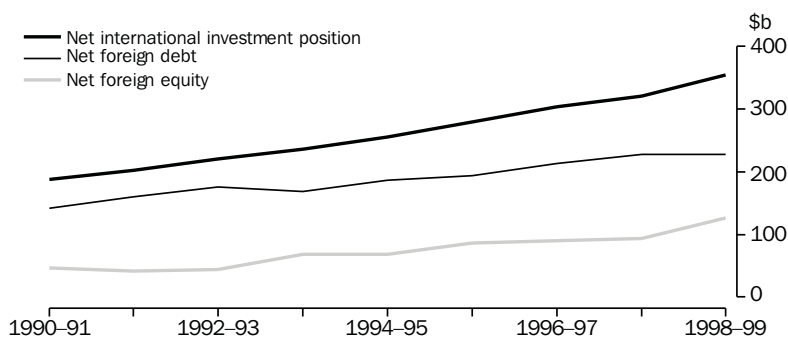
Australia's net international investment position is the difference between the levels of Australia's foreign financial liabilities and the levels of its foreign financial assets. Historically, Australia has had a net liabilities position with the rest of the world.

Australia's net international investment position at 30 June 1999 was a net foreign financial liability of \$353.7b. This was up \$32.8b (10%) on the

position a year earlier and resulted from net increases of \$31.8b in the level of foreign equity and \$1.0b in the level of foreign debt.

Graph 30.11 shows the components of Australia's international investment position between 1990–91 and 1998–99. It shows that the increases in net foreign liabilities reflect increases in both net foreign debt and net foreign equity in most years.

**30.11 NET INTERNATIONAL INVESTMENT POSITION,  
Level at End of Period**



Source: Balance of Payments and International Investment Position, Australia (5302.0).

Table 30.12 shows a reconciliation between opening and closing levels for foreign financial assets, foreign financial liabilities and Australia's net international investment position. Increases

or decreases in these assets and liabilities are due to financial transactions (investment flows), price changes, exchange rate changes and other adjustments.

### 30.12 INTERNATIONAL INVESTMENT POSITION

	Position at beginning of period	Changes in position reflecting				Position at end of period
		Transactions	Price changes	Exchange rate changes	Other adjustments	
	\$m	\$m	\$m	\$m	\$m	\$m
<b>NET INTERNATIONAL INVESTMENT POSITION</b>						
Total						
1996–97	279 089	15 990	9 570	-2 313	776	303 112
1997–98	303 112	21 501	-4 027	1 568	-1 263	320 891
1998–99	320 891	30 520	3 922	619	-2 256	353 696
Equity						
1996–97	85 919	3 069	6 500	-3 418	-1 778	90 292
1997–98	90 292	19 930	-5 643	-10 555	-166	93 858
1998–99	93 858	21 402	6 792	4 370	-797	125 625
Debt						
1996–97	193 170	12 921	3 069	1 107	2 553	212 820
1997–98	212 820	1 572	1 616	12 122	-1 097	227 033
1998–99	227 033	9 118	-2 872	-3 751	-1 457	228 071
<b>FOREIGN ASSETS(a)</b>						
Total						
1996–97	-186 992	-18 759	-4 058	-5 329	-3 713	-218 851
1997–98	-218 851	-14 308	-9 036	-17 106	-691	-259 992
1998–99	-259 992	n.y.a.	n.y.a.	n.y.a.	n.y.a.	n.y.a.
Equity						
1996–97	-103 955	-9 742	-3 914	-3 419	-4 093	-125 123
1997–98	-125 123	-5 063	-5 591	-10 556	-275	-146 609
1998–99	-146 609	n.y.a.	n.y.a.	n.y.a.	n.y.a.	n.y.a.
Debt						
1996–97	-83 037	-9 018	-144	-1 910	381	-93 728
1997–98	-93 728	-9 247	-3 445	-6 551	-413	-113 384
1998–99	-113 384	n.y.a.	n.y.a.	n.y.a.	n.y.a.	n.y.a.
<b>FOREIGN LIABILITIES(b)</b>						
Total						
1996–97	466 081	34 749	13 626	3 019	4 488	521 963
1997–98	521 963	35 810	5 009	18 674	-573	580 883
1998–99	580 883	n.y.a.	n.y.a.	n.y.a.	n.y.a.	n.y.a.
Equity						
1996–97	189 874	12 810	10 413	0	2 318	215 415
1997–98	215 415	24 992	-52	0	111	240 466
1998–99	240 466	n.y.a.	n.y.a.	n.y.a.	n.y.a.	n.y.a.
Debt						
1996–97	276 207	21 941	3 213	3 018	2 169	306 548
1997–98	306 548	10 820	5 062	18 674	-686	340 417
1998–99	340 417	n.y.a.	n.y.a.	n.y.a.	n.y.a.	n.y.a.

(a) Assets include claims of Australian direct investment enterprises on direct investors abroad, which are classified as part of direct investment in Australia. (b) Liabilities include liabilities of Australian direct investors to direct investment enterprises abroad, which are classified as part of direct investment abroad.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

## Foreign debt

Foreign debt is a subset of the financial obligations that comprise a country's international investment position. It includes all the non-equity components of the net international investment position, that is, all recorded assets and liabilities other than equity securities and direct investment equity capital, including reinvested earnings.

The level of borrowing and other non-equity liabilities by Australian residents at a particular date can be equated with Australia's foreign debt liabilities. The level of Australian lending abroad and other non-equity assets at the same date are deducted from the level of borrowing to arrive at Australia's net foreign debt.

The level of net foreign debt at 30 June 1999 was \$228.1b, up less than 1% on 30 June 1998 (\$227.0b). The increase during 1998–99 resulted from net financial transactions of \$9.1b, price changes of –\$2.9b, exchange rate changes of –\$3.8b and other adjustments of –\$1.5b (table 30.12).

At 30 June 1998, the net foreign debt of the public sector (general government plus public financial and non-financial corporations) was \$51.5b, which accounted for 23% of total net foreign debt at that date. Net foreign debt of private financial corporations and private non-financial corporations was \$121.0b (53% of total net foreign debt) and \$54.5b (24%) respectively (table 30.13).

**30.13 LEVELS OF FOREIGN DEBT—At 30 June**

	1993	1994	1995	1996	1997	1998
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Foreign assets(a)</b>	<b>-61 436</b>	<b>-75 255</b>	<b>-78 296</b>	<b>-83 037</b>	<b>-93 728</b>	<b>-113 384</b>
<i>Public sector</i>	-32 725	-32 837	-31 188	-30 639	-31 045	-37 391
General government	-1 987	-1 731	-1 589	-1 591	-2 771	-4 294
Financial corporations	-29 421	-29 971	-28 595	-28 143	-26 853	-32 059
Reserve Bank	-19 968	-19 912	-19 431	-18 444	-22 164	-23 999
Central Borrowing Authorities	-130	-651	-48	-11	-8	-179
Other financial corporations	-9 323	-9 408	-9 116	-9 688	-4 681	-7 881
Non-financial corporations	-1 317	-1 134	-1 004	-905	-1 421	-1 037
<i>Private sector</i>	-28 710	-42 419	-47 108	-52 398	-62 683	-75 993
Financial corporations	-19 447	-30 779	-32 893	-37 999	-44 986	-56 956
Non-financial corporations	-9 263	-11 640	-14 215	-14 399	-17 697	-19 037
<b>Foreign liabilities(a)</b>	<b>237 484</b>	<b>243 174</b>	<b>264 609</b>	<b>276 207</b>	<b>306 548</b>	<b>340 417</b>
<i>Public sector</i>	91 018	92 476	99 477	100 413	97 632	88 880
General government	22 388	23 834	29 300	39 046	43 849	40 580
Financial corporations	58 112	60 153	61 846	56 267	48 213	41 392
Reserve Bank	93	44	67	51	72	48
Central Borrowing Authorities	35 408	37 634	47 695	41 388	40 203	36 571
Other financial corporations	22 611	22 475	14 084	14 828	7 938	4 774
Non-financial corporations	10 518	8 489	8 330	5 100	5 570	6 908
<i>Private sector</i>	146 466	150 697	165 133	175 793	208 916	251 537
Financial corporations	73 044	87 325	101 536	113 494	144 635	177 994
Non-financial corporations	73 423	63 372	63 597	62 300	64 281	73 543
<b>Net foreign debt</b>	<b>176 048</b>	<b>167 919</b>	<b>186 313</b>	<b>193 170</b>	<b>212 820</b>	<b>227 033</b>
<i>Public sector</i>	58 293	59 639	68 289	69 775	66 587	51 489
General government	20 401	22 103	27 711	37 455	41 078	36 286
Financial corporations	28 690	30 182	33 251	28 125	21 360	9 333
Reserve Bank	-19 875	-19 868	-19 364	-18 393	-22 092	-23 951
Central Borrowing Authorities	35 278	36 983	47 647	41 378	40 195	36 391
Other financial corporations	13 287	13 067	4 968	5 140	3 257	-3 107
Non-financial corporations	9 200	7 355	7 326	4 195	4 148	5 870
<i>Private sector</i>	117 756	108 278	118 025	123 396	146 233	175 544
Financial corporations	53 597	56 547	68 643	75 495	99 648	121 038
Non-financial corporations	64 160	51 732	49 382	47 900	46 585	54 506

(a) Foreign debt levels between direct investors and direct investment enterprises are recorded on a gross basis for assets and liabilities.

Source: Balance of Payments and International Investment Position, Australia (5302.0).

## Levels of Australian investment abroad and foreign investment in Australia

In table 30.14, levels of investment are categorised by direction (Australian investment abroad and foreign investment in Australia), type of investment (direct, portfolio, other and reserve assets) and by instrument.

Direct investment is a category of international investment that reflects the objective of obtaining a lasting interest by a resident in one economy in an enterprise in another economy, and implies a significant degree of influence by the investor on the management of the enterprise. A direct investment relationship is established when a

direct investor, who is a resident in one economy, holds 10% or more of the ordinary shares or voting stock of an enterprise (direct investment enterprise) in another economy. The portfolio investment category covers investment in equity and debt securities (other than direct investment and reserve assets).

The items Australian investment abroad and Foreign investment in Australia in table 30.14 do not equate with foreign assets and liabilities respectively in table 30.12. The difference is due to netting of assets and liabilities in regard to direct investment, both abroad and in Australia. Claims by direct investment enterprises on their direct investors, separately identified in table 30.14, are netted off in that table against liabilities to direct investors. These items are not netted off in table 30.12.

**30.14 LEVELS OF AUSTRALIAN INVESTMENT ABROAD AND FOREIGN INVESTMENT IN AUSTRALIA—At 30 June**

	1993	1994	1995	1996	1997	1998
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Levels of Australian investment abroad</b>	<b>-136 981</b>	<b>-155 980</b>	<b>-167 752</b>	<b>-179 121</b>	<b>-209 141</b>	<b>-248 911</b>
<i>Direct investment abroad(a)</i>	-52 697	-54 674	-62 356	-64 939	-77 106	-90 878
Equity capital and reinvested earnings	-54 084	-56 338	-64 918	-65 706	-77 589	-91 305
Other capital	1 388	1 664	2 562	766	484	427
Claims on affiliated enterprises	-4 878	-3 240	-3 018	-3 548	-4 483	-4 766
Liabilities to affiliated enterprises	6 266	4 904	5 580	4 314	4 967	5 193
<i>Portfolio investment assets</i>	-39 817	-52 948	-56 322	-57 460	-69 940	-82 828
Equity securities	-28 242	-32 565	-35 160	-38 250	-47 534	-55 303
Debt securities	-11 576	-20 383	-21 162	-19 210	-22 406	-27 525
<i>Other investment assets</i>	-23 643	-27 697	-28 890	-37 663	-39 305	-49 757
Trade credits	-5 717	-6 865	-6 295	-6 720	-8 083	-10 030
Loans and other assets	-15 351	-17 843	-19 286	-25 943	-26 433	-32 829
Currency and deposits	-2 575	-2 988	-3 309	-5 000	-4 788	-6 899
<i>Reserve assets</i>	-20 823	-20 661	-20 184	-19 059	-22 791	-25 448
<b>Levels of foreign investment in Australia</b>	<b>357 321</b>	<b>392 332</b>	<b>422 750</b>	<b>458 210</b>	<b>512 254</b>	<b>569 803</b>
<i>Direct investment in Australia(b)</i>	114 297	119 306	123 409	136 394	150 221	155 730
Equity capital and reinvested earnings	91 311	99 449	104 633	116 308	128 153	134 939
Other capital	22 985	19 857	18 776	20 086	22 068	20 792
Claims on direct investors	-515	-3 275	-5 043	-3 557	-4 743	-5 888
Liabilities to direct investors	23 501	23 132	23 819	23 642	26 811	26 679
<i>Portfolio investment liabilities</i>	180 168	209 043	236 290	261 817	301 470	338 542
Equity securities	35 308	57 888	64 131	73 566	87 263	105 528
Debt securities	144 861	151 155	172 159	188 251	214 208	233 015
<i>Other investment liabilities</i>	62 856	63 983	63 051	60 000	60 562	75 530
Trade credits	5 280	6 828	7 211	7 620	6 180	7 549
Loans	48 833	38 035	37 729	32 008	30 378	30 743
Currency and deposits	8 388	18 686	17 626	18 358	21 772	34 430
Other liabilities	354	434	485	2 014	2 232	2 807

(a) Net direct investment abroad, after deduction of liabilities to direct investment enterprises abroad. (b) Net direct investment in Australia, after deduction of claims of Australian direct investment enterprises on direct investors.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).



At 30 June 1998, Australian investment abroad totalled \$248.9b, up 19% on the level a year earlier. This rise was the net effect of a \$13.8b increase in direct investment abroad, a \$12.9b increase in portfolio investment assets, a \$10.5b increase in other investment assets and a \$2.7b increase in reserve assets.

Foreign investment in Australia totalled \$569.8b at 30 June 1998, up 11% on June 1997. This rise was due to a \$5.5b increase in direct investment in Australia, a \$37.1b increase in portfolio investment liabilities, and a \$15.0b increase in other investment liabilities. The increase in portfolio investment liabilities was attributable to significant increases in both equity (\$18.3b) and debt securities (\$18.8b).

## Ratios

Table 30.15 and graph 30.16 show that the ratio of the current account deficit to GDP was 5.5% in 1998–99, an increase of 1.5 percentage points over the previous year and now above the average for the last ten years.

Graph 30.17 shows that the ratio of Australia's net foreign liabilities (Australia's net international investment position) to GDP has been rising since 30 June 1988 and reached its highest level of about 60% at 30 June 1999. The ratio of net foreign debt to GDP was 38% at 30 June 1999, down marginally on the results for recent years. The ratio of net foreign equity to GDP, 21% at 30 June 1999, is up almost 5 percentage points on the ratio as at 30 June 1998 and is more than double the ratio ten years earlier.

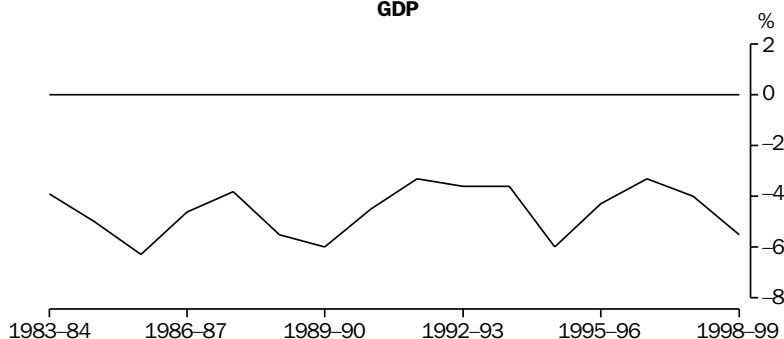
Table 30.15 shows that the net investment income payable on net foreign debt as a percentage of goods and services credits was 9.1% in 1998–99, the lowest ratio since 1983–84. The ratio of net investment income payable on equity to goods and services credits was 6.6% in 1998–99, up on the ratio for 1997–98 but down on the ratios for the three years to 1996–97.

### 30.15 RATIOS

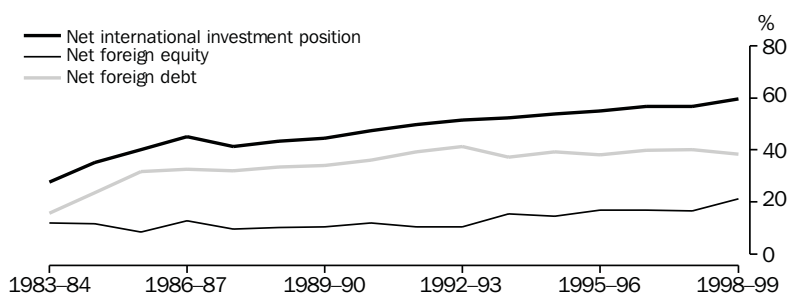
Current transactions	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
\$ MILLION						
GDP(a)	450 050	474 646	508 246	533 709	565 963	593 412
RATIOS TO GDP (%)						
Current account	–3.6	–6.0	–4.3	–3.3	–4.0	–5.5
Goods and services	–0.5	–2.1	–0.4	0.3	–0.8	–2.5
Credits	18.4	18.5	19.5	19.7	20.1	18.8
Debits	–19.0	–20.6	–19.9	–19.4	–21.0	–21.3
Income	–3.0	–3.8	–3.8	–3.6	–3.2	–3.0
Net international investment position(b)	52.5	53.7	54.9	56.8	56.7	59.6
Net foreign equity	15.2	14.5	16.9	16.9	16.6	21.2
Net foreign debt	37.3	39.3	38.0	39.9	40.1	38.4
RATIOS TO GOODS AND SERVICES CREDITS (%)						
Net investment income	–16.6	–20.9	–19.9	–18.5	–15.8	–15.7
Net foreign equity	–5.8	–8.6	–8.4	–7.2	–6.1	–6.6
Net foreign debt	–10.8	–12.3	–11.5	–11.3	–9.7	–9.1

(a) GDP at current prices, Australian National Accounts: National Income, Expenditure and Product (5206.0). (b) These ratios are derived by expressing net foreign liabilities at end of year as a percentage of GDP at current prices for that year.

Source: *Balance of Payments and International Investment Position, Australia* (5302.0).

**30.16 RATIO OF BALANCE ON CURRENT ACCOUNT TO GDP**

Source: Balance of Payments and International Investment Position, Australia (5302.0);  
Australian National Accounts: National Income, Expenditure and Product (5206.0).

**30.17 RATIOS OF NET INTERNATIONAL INVESTMENT POSITION TO GDP(a)**

(a) These ratios are derived by expressing net foreign liabilities at end of year as a percentage of GDP at current prices for that year.

Source: Balance of Payments and International Investment Position, Australia (5302.0);  
Australian National Accounts: National Income, Expenditure and Product (5206.0).

## Foreign ownership in Australia

Table 30.18 shows that the value of equity on issue by Australian enterprise groups at 30 June 1999 stood at \$989.1b. Of this total, 73% related to shares or equivalent equity interests issued by corporate trading enterprises. Banks accounted for a further 11% of total equity issued, while lesser amounts were issued by non-bank deposit taking institutions (2% of the total); the central bank (1%) and other financial sub-sectors, including life offices and superannuation funds (13%).

Of the total equity on issue by Australian enterprise groups at 30 June 1999, non-residents held equity valued at \$280.4b (28%), while residents held \$708.7b (72%).

Although the proportion of equity held by non-residents has remained relatively stable at around 28%, the total value of equity on issue has increased by 55%, from \$639.9b to \$989.1b, over the period 30 June 1996 to 30 June 1999.

Analysed by sub-sector, at 30 June 1999 non-residents held 31% of the equity in corporate trading enterprises, which has changed little over recent years. The value of equity on issue by corporate trading enterprises at 30 June 1999 increased 15% on the previous year.

The amount issued by banks has nearly doubled over the period 30 June 1996 to 30 June 1999. The proportion of non-resident holdings of the total equity issued by banks has also risen over this period, from 23% at 30 June 1996 to 28% at 30 June 1999.

**30.18 FOREIGN OWNERSHIP OF EQUITY(a)—At 30 June**

	Unit	1996	1997	1998	1999
<b>ALL SECTORS COMBINED</b>					
Amount issued	\$b	639.9	751.3	902.9	989.1
Amount held by rest of the world	\$b	191.7	215.4	240.5	280.4
Percentage of foreign ownership	%	30	29	27	28
<b>SUB-SECTORS</b>					
Corporate trading enterprises(b)					
Amount issued(c)	\$b	505.1	559.2	633.1	725.3
Amount held by rest of the world	\$b	160.3	178.7	182.5	223.9
Percentage of foreign ownership	%	32	32	29	31
Banks					
Amount issued(c)	\$b	60.7	95.3	107.6	112.8
Amount held by rest of the world	\$b	14.1	19.2	28.7	31.9
Percentage of foreign ownership	%	23	20	27	28
Non-bank deposit taking institutions					
Amount issued(c)	\$b	15.9	15.9	15.6	16.3
Amount held by rest of the world	\$b	5.2	4.7	5.0	4.3
Percentage of foreign ownership	%	32	29	32	26
Other financial sub-sectors(d)					
Amount issued(c)	\$b	48.8	71.3	134.1	123.8
Amount held by rest of the world	\$b	12.2	12.8	24.5	20.3
Percentage of foreign ownership	%	25	18	18	16
Central bank					
Amount issued(e)(f)	\$b	9.4	9.7	12.6	10.9

(a) Equity includes units in trusts. (b) Includes private non-financial corporations, and Commonwealth, State and local public non-financial corporations. (c) These estimated market values are considered to be of poor quality. They should be used cautiously. (d) Includes life offices and superannuation funds, central borrowing authorities, and other financial institutions. (e) Net asset values. (f) There is no foreign ownership in this sub-sector.

Source: Australian National Accounts: Financial Accounts (5232.0); Balance of Payments and International Investment Position, Australia (5302.0).

Although the value of equity issued by life offices, superannuation funds and other financial institutions has more than doubled over the period 30 June 1996 to 30 June 1999, the foreign ownership of this equity has fallen from 25% at 30 June 1996 to 16% at 30 June 1999.

Data for equity on issue by unlisted corporations are of lesser quality than the data supplied by the Australian Stock Exchange for listed corporations. Data for unlisted corporations are compiled from returns supplied in the ABS Survey of Financial Information, ABS Survey of International Investment, selected annual reports and estimates synthesised from analysing residual items in demand and supply tables for the various share markets.

In terms of the analysis undertaken here, errors in the estimated market value of equity on issue will impact on the accuracy of estimates of the proportion of that equity owned by non-residents.

## International merchandise trade

### Conceptual framework

Australia's international merchandise trade statistics, relating to the exports and imports of goods, are compiled in broad agreement with the United Nations' (UN) recommendations for the compilation of international trade statistics.

The UN recommendations state that merchandise trade covers all movable goods which add to (imports) or subtract from (exports) the stock of material resources of a country as a result of their movement into or out of the country.

The UN definition excludes:

- direct transit trade, that is, goods being trans-shipped or moved through Australia for purposes of transport only;
- ships and aircraft moving through Australia while engaged in the transport of passengers or goods between Australia and other countries; and

- non-merchandise trade, consisting primarily of goods moving on a temporary basis (e.g. mobile equipment, goods under repair and goods for exhibition) and passengers' effects.

International merchandise trade statistics are compiled by the ABS from information submitted by exporters and importers or their agents to the Australian Customs Service.

The UN recommendations for the compilation of merchandise trade statistics recognise that the basic sources used by most compiling countries—customs records—will not be able to capture certain transactions. In Australia the following types of goods, which fall within the scope of the UN definition of merchandise trade, are excluded because customs entries are not required:

- parcel post exports for values not exceeding \$2,000 and parcel post imports for values not exceeding \$1,000; and
- migrants' and passengers' effects exported or imported.

For exports only, types of goods excluded are:

- fish and other sea products landed abroad directly from the high seas by Australian ships; and
- individual transaction lines (within an export consignment) where the value of the goods is less than \$500.

For imports only, types of goods excluded are:

- bunkers, aviation fuel and stores supplied abroad to Australian ships and aircraft; and
- consignments screened free or entered on informal clearance documents for values not exceeding \$250. From July 1998 individual transactions lines (within a formally entered import consignment), where the value of goods is less than \$250, are not processed by ABS and are also excluded.

## Classification

In addition to the primary classification between exports and imports, international merchandise trade is also classified by commodity, by country of origin/destination, by Australian State of production/destination, and by industry of origin.

Export and import commodity statistics are available classified according to:

- the *Harmonized System*, a World Customs Organization classification which groups goods according to their component materials, from raw materials through to processed and manufactured products;
- the codes and descriptions of the third revision of the United Nations *Standard International Trade Classification* (SITC Rev. 3). This classification groups commodities according to the degree of processing they have undergone, from food and crude raw materials through to highly transformed manufactures; and
- the 19 categories of the United Nations *Classification by Broad Economic Categories* (BEC). The BEC classifies international trade statistics for the purposes of general economic analysis according to the main end use of the commodities traded.

Commodity export and import statistics in this section are presented according to SITC Rev. 3.

## Valuation

For exports, the point of valuation adopted is free-on-board (f.o.b.) at the Australian port of shipment, while the basis of valuation is 'transactions value', the actual price at which the goods are sold.

For imports, the point of valuation is the point of containerisation (in most cases), or f.o.b. at the customs frontier of the exporting country or the port of loading, whichever comes first. The basis of valuation is the customs value. For transactions between independent buyers and sellers, this will generally be the price actually payable. Where traders are not independent (for example if they are related or affiliated in some way), an appropriate customs value may be determined.

## Total merchandise exports and imports

In 1998–99, Australian merchandise exports fell by 2% to \$86.0b and Australian merchandise imports rose by 8% to \$97.6b. Imports exceeded exports by \$11.6b, an increase of \$8.7b on the \$2.9b deficit recorded in 1997–98 (table 30.19 and graph 30.20).

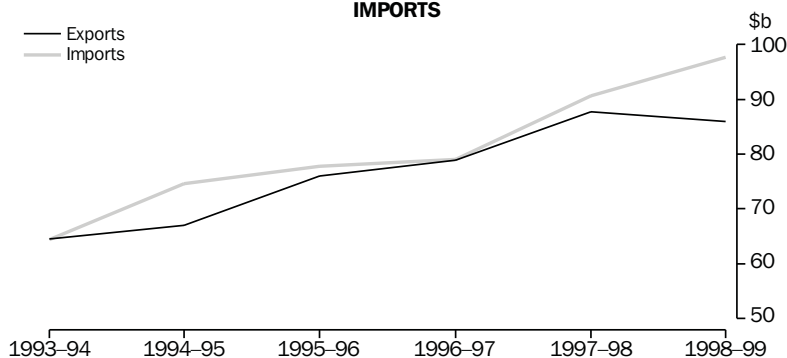
**30.19 TOTAL MERCHANDISE EXPORTS AND IMPORTS**

Financial year	Exports \$m	Imports \$m	Excess of exports or imports(a) \$m
1993–94	64 548	64 470	78
1994–95	67 052	74 619	-7 567
1995–96	76 005	77 792	-1 787
1996–97	78 932	78 998	-66
1997–98	87 769	90 684	-2 915
1998–99	86 000	97 623	-11 623

(a) A negative sign indicates that imports exceed exports.

Source: International Trade database, August 1999.

**30.20 TOTAL MERCHANDISE EXPORTS AND IMPORTS**



Source: International Trade database, August 1999.

## Merchandise exports and imports by State/Territory

Table 30.21 classifies merchandise trade by Australian State or Territory.

For exports, State/Territory refers to the State of origin of the goods, that is the place where the final stage of production or manufacturing occurs. The State of origin is not necessarily the State in which the goods were loaded for export.

For imports, State/Territory refers to the State of final destination, that is the place where imported goods were released from Customs control. The State of final destination is not necessarily the State in which the goods were discharged, nor is it necessarily the State in which they are used.

Re-exports are defined as goods, materials or articles originally imported into Australia which are exported in the same condition, or after undergoing minor operations (e.g. blending, packaging, bottling, cleaning, husking or shelling) which leave them essentially unchanged.

New South Wales was the State of final destination for the highest proportion of imports for each of the last three financial years, and Western Australia was the State of origin of the highest proportion of Australia's exports over this period, largely due to the importance of minerals exports.

**30.21 MERCHANDISE EXPORTS AND IMPORTS, By State/Territory**

	Exports			Imports		
	1996–97	1997–98	1998–99	1996–97	1997–98	1998–99
	\$m	\$m	\$m	\$m	\$m	\$m
State/Territory						
New South Wales	17 730	19 680	17 979	34 229	38 481	42 149
Victoria	16 306	15 938	16 533	25 093	28 851	31 014
Queensland	13 567	16 289	15 860	8 637	9 751	10 812
South Australia	5 009	4 979	5 301	3 413	3 940	3 717
Western Australia	19 332	22 765	21 786	6 815	8 609	9 017
Tasmania	1 708	2 136	2 014	396	385	407
Northern Territory	1 245	1 199	1 241	404	657	495
Australian Capital Territory	9	13	21	12	10	12
State not available(a)	320	315	477	0	0	0
<b>Total</b>	<b>75 227</b>	<b>83 312</b>	<b>81 211</b>	<b>78 998</b>	<b>90 684</b>	<b>97 623</b>
Re-exports	3 705	4 457	4 789	..	..	..
<b>Total</b>	<b>78 932</b>	<b>87 769</b>	<b>86 000</b>	<b>78 998</b>	<b>90 684</b>	<b>97 623</b>

(a) Includes commodities for which State/Territory is confidential.

Source: *International Trade database, August 1999.*

## Merchandise exports and imports by country

For the purposes of international merchandise trade statistics, a country is defined as a geographical entity which trades, or has the potential to trade, with Australia in accordance with Australian Customs Service provisions. In Australian merchandise trade statistics, external territories under Australian administration are treated as separate countries, as are some self-governing territories and dependent territories under the administration of other countries.

For exports, country refers to the country to which the goods were consigned at the time of export. For imports, country refers to the country of origin of the goods, which is defined as the country of production for Customs purposes. Where the country of consignment/origin is not known at the time of export/import, goods are recorded as Destination unknown (exports) or Origin unknown (imports).

Graphs 30.22 and 30.23 show respectively Australia's merchandise exports to and imports from selected countries and country groups in 1998–99. They show the importance of trade with the APEC group of countries. Table 30.24 shows merchandise trade for the last three financial years, classified by country and the two country groups APEC and the European Union.

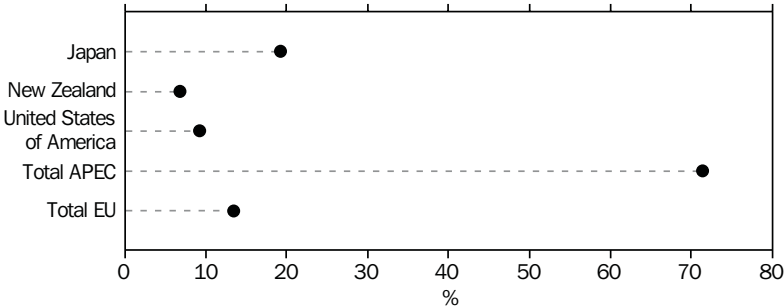
The main contributors to the \$11,623m increase in the merchandise trade deficit for 1998–99 were:

- a \$1,921m (39%) fall in the surplus with Japan as a result of a rise in imports of \$926m (mainly road vehicles) and a fall in exports of \$995m (primarily non-ferrous metals and coal);
- a \$1,268m (41%) fall in the surplus with Hong Kong as a result of a rise in imports of \$198m (mainly non-monetary gold for processing) and a fall in exports of \$1,070m (primarily non-monetary gold produced in Australia);
- a \$955m rise in the deficit with Indonesia as a result of an increase in imports of \$404m (mainly petroleum, petroleum products and related materials; paper, paperboard and articles of paper; and non-monetary gold) and a fall in exports of \$551m (primarily petroleum, petroleum products and related materials; and combined confidential items of trade); and
- an \$872m (7%) rise in the deficit with the USA as a result of a rise in imports of \$1,059m (mainly transport equipment (excluding road vehicles)) partly offset by a rise in exports of \$188m (primarily special transactions and commodities not classified according to kind, and meat and meat preparations).

These contributions to the increase in the overall merchandise trade deficit were partly offset by:

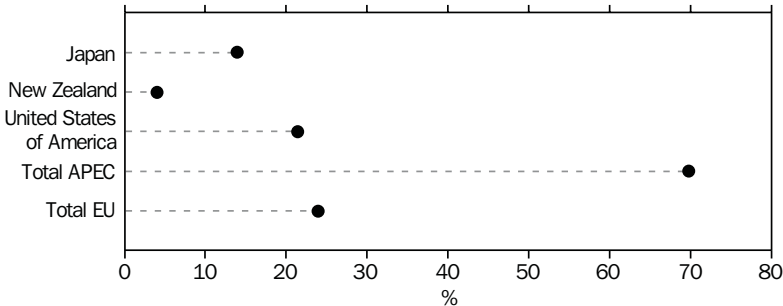
- a \$1,424m (56%) fall in the deficit with the United Kingdom as a result of a rise in exports of \$1,379m (mainly non-monetary gold) and a slight fall in imports of \$45m; and
- a \$631m turnaround from deficit to surplus with Saudi Arabia as a result of an increase in exports of \$515m (chiefly road vehicles, combined confidential items of trade and non-monetary gold) and a fall in imports of \$116m (mainly petroleum, petroleum products and related materials).

30.22 AUSTRALIAN MERCHANDISE EXPORTS, Selected Countries and Country Groups—1998–99



Note: Japan, New Zealand and the USA are part of the APEC country grouping.  
Source: International Trade database, August 1999.

30.23 AUSTRALIAN MERCHANDISE IMPORTS, Selected Countries and Country Groups—1998–99



Note: Japan, New Zealand and the USA are part of the APEC country grouping.  
Source: International Trade database, August 1999.

## 30.24 MERCHANDISE EXPORTS AND IMPORTS, By Country

	1996-97		1997-98		1998-99	
	Exports	Imports	Exports	Imports	Exports	Imports
	\$m	\$m	\$m	\$m	\$m	\$m
Asia Pacific Economic Co-operation (APEC)						
Australia (Re-imports)	..	224	..	344	..	333
Brunei	59	—	52	5	49	11
Canada	1 178	1 265	1 276	1 436	1 274	1 547
Chile	174	89	178	81	212	68
China	3 584	4 203	3 872	5 303	3 945	6 106
Hong Kong (SAR of China)	3 105	900	4 138	1 031	3 068	1 229
Indonesia	3 305	1 864	2 751	2 868	2 200	3 272
Japan	15 377	10 241	17 582	12 660	16 587	13 586
Korea, Republic of	7 134	2 550	6 397	3 767	6 324	3 895
Malaysia	2 332	1 891	2 097	2 404	1 857	2 845
Mexico	122	176	216	270	314	365
New Zealand	6 214	3 685	5 663	3 723	5 820	3 950
Papua New Guinea	1 272	1 091	1 152	768	1 012	781
Peru	36	19	64	14	55	20
Philippines	1 226	282	1 163	418	1 208	405
Russian Federation	101	24	224	17	170	23
Singapore	3 410	2 620	3 697	2 643	3 421	2 947
Taiwan	3 620	2 522	4 180	2 809	4 198	2 979
Thailand	1 693	1 201	1 390	1 480	1 306	1 902
United States of America	5 526	17 642	7 794	19 834	7 982	20 893
Viet Nam	211	433	325	664	349	972
<i>Total</i>	59 678	52 923	64 213	62 542	61 350	68 130
European Union (EU)						
Austria	21	423	32	458	44	474
Belgium-Luxembourg	923	760	1 154	739	1 082	661
Denmark	100	383	205	399	77	459
Finland	303	606	295	686	191	601
France	799	1 980	856	2 029	914	2 203
Germany	1 058	4 558	1 243	5 207	1 415	6 082
Greece	39	95	61	91	55	101
Ireland	53	498	66	830	173	1 000
Italy	1 354	2 304	1 752	2 614	1 562	2 916
Netherlands	584	817	829	847	863	918
Portugal	32	106	31	121	54	141
Spain	328	458	514	652	563	653
Sweden	220	1 497	157	1 557	160	1 576
United Kingdom	2 357	5 182	3 040	5 593	4 419	5 548
<i>Total</i>	8 171	19 666	10 236	21 824	11 574	23 334
Other countries						
Algeria	23	—	42	1	58	—
Angola	3	—	4	—	2	—
Argentina	116	101	109	79	173	86
Bahamas	1	1	3	6	4	11
Bahrain(a)	80	23	107	29	75	24
Bangladesh	263	39	251	51	288	43
Barbados	3	1	4	—	5	1
Bolivia	2	6	2	6	1	2
Brazil	333	351	408	363	395	342
Bulgaria	20	7	23	6	26	7
Cambodia	16	2	10	1	14	1
Cayman Islands	0	13	—	—	—	—
Christmas Island	17	4	15	7	13	9
Cocos (Keeling) Island	2	2	5	—	4	—
Colombia	59	21	30	21	19	19
Cook Islands	4	1	5	1	6	2

For footnotes see end of table.

...continued



**30.24 MERCHANDISE EXPORTS AND IMPORTS, By Country—continued**

	1996-97		1997-98		1998-99	
	Exports	Imports	Exports	Imports	Exports	Imports
	\$m	\$m	\$m	\$m	\$m	\$m
Other countries — (continued)						
Costa Rica	2	7	2	9	3	27
Cote d'Ivoire	1	5	2	8	1	13
Croatia	6	7	10	8	6	8
Cuba	2	4	1	4	3	4
Cyprus	12	2	9	4	14	3
Czech Republic	30	52	60	50	53	67
Dominican Republic	1	1	6	2	16	3
Ecuador	21	2	19	2	9	3
Egypt(a)	519	11	343	14	589	11
Ethiopia	2	2	11	2	20	2
Fiji	524	264	526	307	552	349
French Polynesia	91	6	120	5	102	8
Ghana	59	7	63	6	55	7
Guam	18	—	16	—	18	—
Guatemala	1	3	11	5	19	4
Hungary	4	35	15	56	7	66
Iceland(a)	4	7	6	4	4	3
India	1 493	577	1 852	687	1 858	667
Iran	925	26	274	25	451	27
Iraq	143	—	318	16	267	143
Israel	105	290	122	387	155	386
Jamaica	9	1	13	1	19	1
Jordan	74	29	64	30	88	26
Kenya	53	13	37	18	78	21
Kiribati	23	1	20	—	28	1
Kuwait	160	120	178	92	274	54
Laos	8	—	2	—	4	—
Lebanon	30	5	33	6	40	7
Libya	42	—	124	—	59	—
Lithuania	7	1	6	1	9	1
Macau	13	6	8	9	15	7
Madagascar	4	1	2	1	7	1
Malawi	2	5	3	6	2	6
Maldives	3	—	4	—	6	—
Malta	9	6	13	6	13	4
Marianas, Northern	3	—	3	1	3	—
Marshall Islands	3	—	4	—	6	—
Mauritius	96	2	91	2	106	2
Micronesia, Federated States of	9	—	16	—	16	—
Morocco	49	12	39	19	29	26
Mozambique	15	—	22	—	21	—
Myanmar	15	9	26	13	13	12
Namibia	2	8	2	6	5	8
Nauru	21	11	27	10	16	6
Nepal	7	2	6	2	15	1
Netherlands Antilles	3	1	7	2	66	1
New Caledonia	220	43	183	41	183	46
Nigeria	13	58	17	0	14	12
Norfolk Island	22	—	14	—	17	1
Norway	141	180	147	206	159	206
Oman	123	64	196	19	131	16
Pakistan	304	144	467	173	475	162
Palau	6	—	2	—	1	—
Panama	2	1	7	1	2	—
Poland	72	29	38	90	21	35

For footnotes see end of table.

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**30.24 MERCHANDISE EXPORTS AND IMPORTS, By Country—continued**

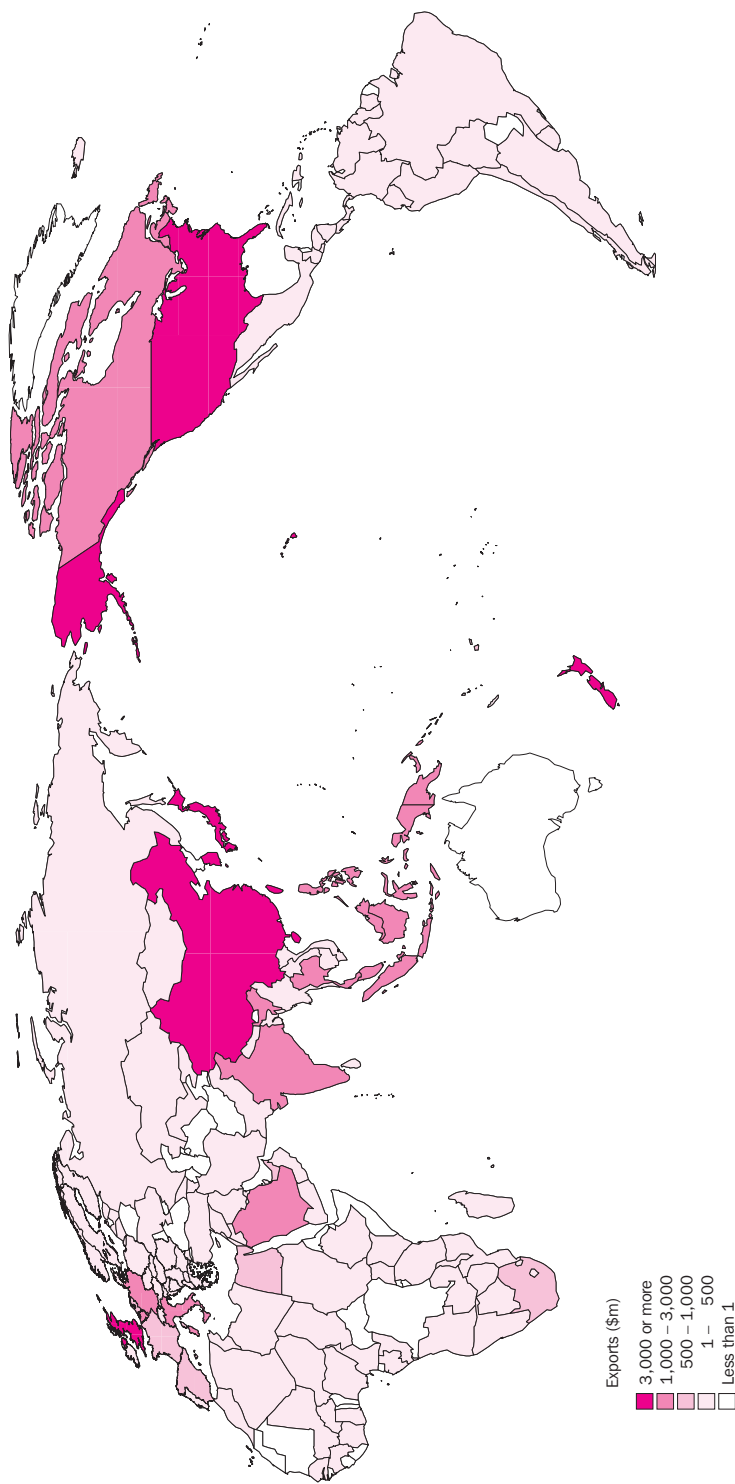
	1996-97		1997-98		1998-99	
	Exports	Imports	Exports	Imports	Exports	Imports
	\$m	\$m	\$m	\$m	\$m	\$m
Other countries — (continued)						
Puerto Rico	7	275	8	122	7	124
Qatar	52	102	59	167	67	74
Romania	122	10	96	7	75	9
Samoa	41	67	35	56	30	56
Samoa (American)	18	4	18	6	14	4
Saudi Arabia	448	858	545	648	1 060	532
Seychelles	3	—	9	1	7	—
Slovak Republic	3	3	4	4	4	8
Slovenia	9	25	7	30	12	35
Solomon Islands	83	4	101	6	98	4
South Africa	1 014	424	1 093	582	943	537
Sri Lanka	199	58	179	74	241	75
Sudan	28	—	36	—	50	—
Switzerland	237	895	1 097	950	443	1 092
Syria	4	1	8	1	14	1
Tanzania	29	6	35	5	70	5
Tonga	14	1	19	1	17	1
Trinidad and Tobago	8	1	27	1	29	1
Tunisia	2	8	10	5	15	16
Turkey	384	74	636	112	350	114
Uganda	3	6	4	6	2	6
Ukraine	8	2	12	2	9	8
United Arab Emirates	665	800	1 006	492	835	201
United States Virgin Islands	0	8	8	6	1	0
Uruguay	10	5	9	3	11	6
Vanuatu	44	1	44	1	48	1
Venezuela	5	1	12	2	15	2
Wallis & Futuna Islands	6	—	5	—	7	—
Yemen	91	—	144	—	119	43
Zimbabwe	33	17	48	18	15	12
Zone of Co-op A — Timor Gap	55	—	132	—	25	41
Other countries	57	74	145	25	146	78
Destination or Origin Unknown	1	47	—	57	1	61
International Waters	0	—	208	—	125	—
No Country Details(a)	320	—	315	—	412	—
Ships' Stores	612	—	579	—	468	—
Unidentified(b)	—	—	—	—	65	—
<i>Total</i>	<i>11 083</i>	<i>6 409</i>	<i>13 320</i>	<i>6 318</i>	<i>13 076</i>	<i>6 159</i>
<b>Total</b>	<b>78 932</b>	<b>78 998</b>	<b>87 769</b>	<b>90 684</b>	<b>86 000</b>	<b>97 623</b>

(a) Exports of alumina to Bahrain, Egypt and Iceland are excluded from country totals and included in the 'No country details' category. (b) Includes \$65m of exports for June 1999 which cannot yet be allocated by country.

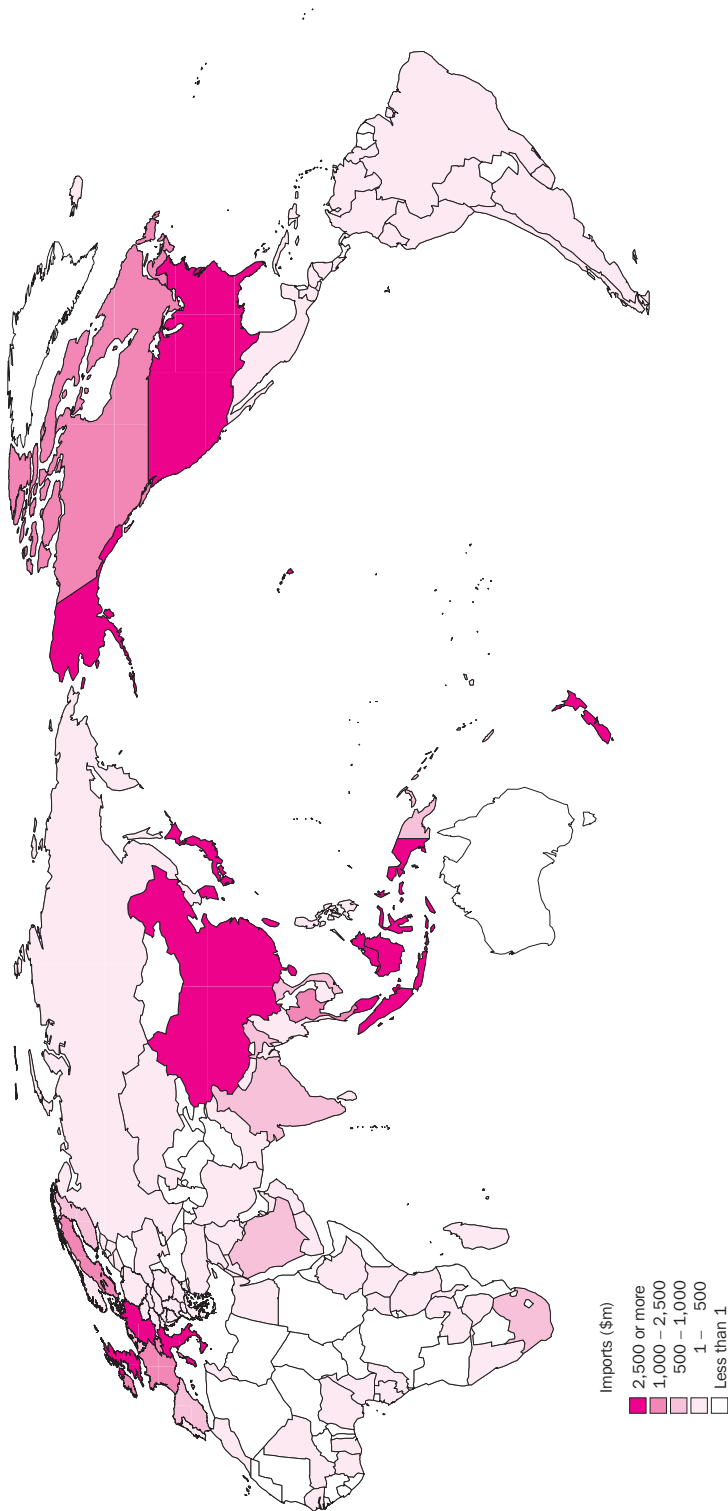
Source: *International Trade database, August 1999.*

Maps 30.25, 30.26 and 30.27 show the main destination and source countries of Australia's exports and imports.

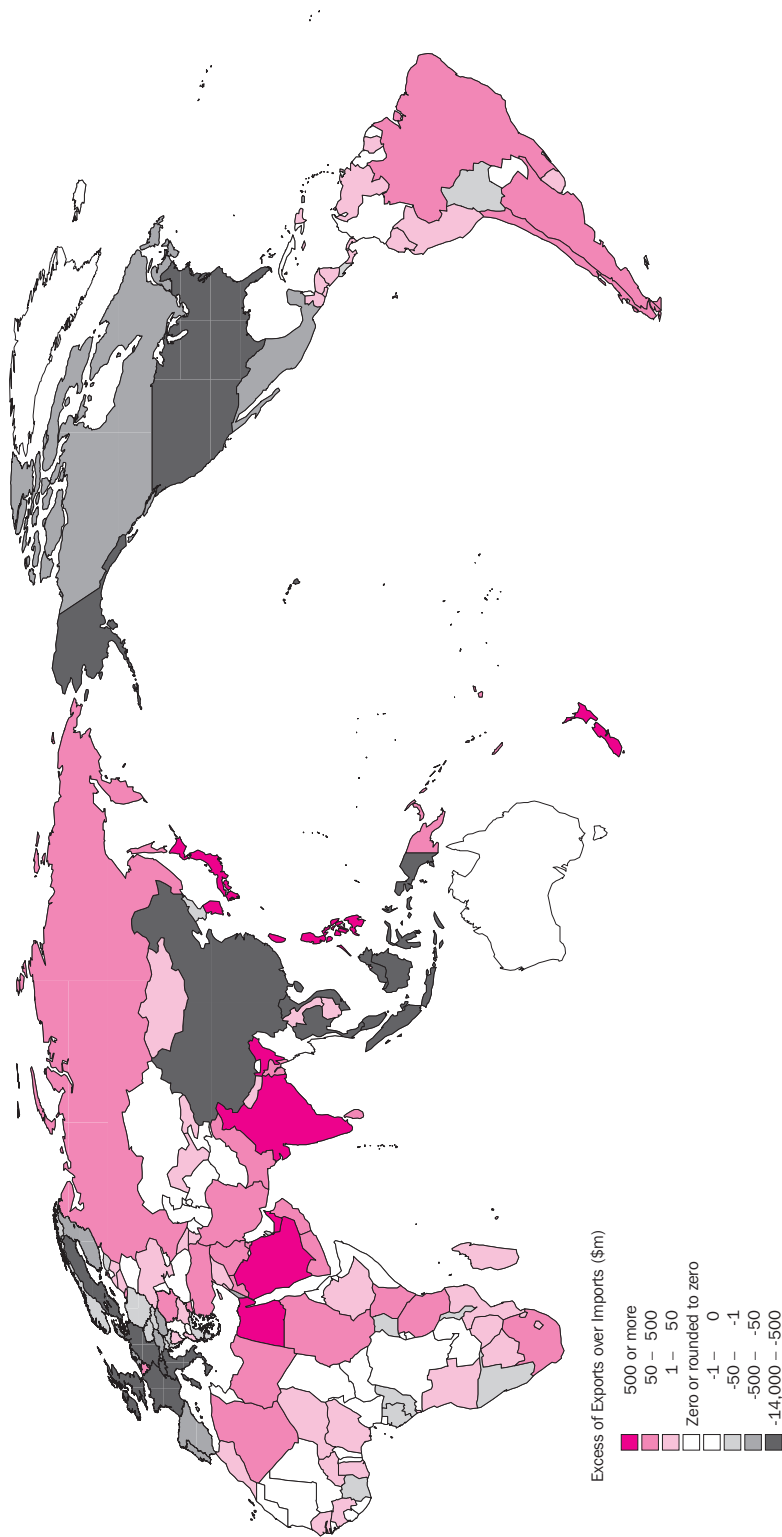
30.25 AUSTRALIA'S MERCHANDISE EXPORTS, Destinations—1998-99



30.26 AUSTRALIA'S MERCHANDISE IMPORTS, Source Countries—1998–99



30.27 AUSTRALIA'S NET BALANCE OF TRADE, Partner Countries—1998–99



## Merchandise exports and imports by commodity

Commodity export and import statistics are presented according to the codes and descriptions of the third revision of the *United Nations Standard International Trade Classification* (SITC Rev. 3). This classification groups commodities according to the degree of processing they have undergone, from food and crude raw materials through to highly transformed manufactures.

Tables 30.28 and 30.29 show the value of major commodities exported and imported in 1998–99 and their percentage of the total value of Australian exports and imports.

Table 30.30 shows the value of all exports and imports, at a broad commodity level, for 1996–97 to 1998–99.

For the year ended June 1999, exports were \$86,000m, down \$1,769m (2%) on the previous financial year. The most significant contributors to the fall were textile fibres and their wastes (not manufactured into yarn or fabric), down \$1,035m (20%) to \$4,070m; and petroleum, petroleum products and related materials, down \$713m (19%) to \$3,133m. The export commodities recording the biggest rises were road vehicles, up \$362m (21%) to \$2,091m; and oil seeds and oleaginous fruits, up \$326m (87%) to \$701m.

Australia's major commodity exports for 1998–99 and their principal markets were:

- coal, \$9,283m—11% of total exports: Japan (42%), the Republic of Korea (11%), India (7%), and Taiwan (6%);
- gold, non-monetary, \$6,335m—7% of total exports: the United Kingdom (26%), Singapore (20%), the Republic of Korea (17%) and Hong Kong (7%). This comprises gold produced in Australia, and gold previously imported for refining or manufacturing;
- iron ore, \$3,843m—4% of total exports: Japan (46%), China (20%), and the Republic of Korea (15%); and
- wheat, \$3,396m—4% of total exports; principal market information is confidential.

For the year ended June 1999, imports were \$97,623m, up \$6,939m (8%) on the previous year. The most significant rises were recorded for: telecommunications and sound recording and reproducing apparatus and equipment, up \$947m (24%) to \$4,927m; transport equipment (excluding road vehicles), up \$912m (47%) to \$2,848m; road vehicles, up \$604m (5%) to \$11,904m; and medicinal and pharmaceutical products, up \$497m (20%) to \$3,041m. The largest fall was in iron and steel, down \$149m (9%) to \$1,472m.

Australia's major commodity imports for 1998–99 and their principal sources were:

- cars and other passenger motor vehicles, \$6,483m—7% of total imports: Japan (59%), Germany (16%), and the Republic of Korea (10%);
- computing equipment, \$4,497m—5% of total imports: the United States of America (23%), Singapore (19%), Taiwan (12%), Malaysia (12%) and Japan (12%);
- crude petroleum oils, \$3,601m—4% of total imports: Indonesia (35%), Viet Nam (21%) and Papua New Guinea (12%); and
- telecommunications equipment, \$3,586m—4% of total imports: the United States of America (19%), Japan (12%) and the Republic of Korea (10%).

## 30.28 MERCHANDISE EXPORTS OF MAJOR COMMODITIES—1998–99

Major commodities	\$m	%
Aircraft and associated equipment	761	0.9
Alumina (aluminium oxide)	2 843	3.3
Aluminium	3 298	3.8
Barley, unmilled	698	0.8
Cars and other road vehicles	2 091	2.4
Cheese and curd	696	0.8
Coal	9 283	10.8
Computing equipment and office machines	1 455	1.7
Copper ores and concentrates	1 005	1.2
Copper and copper alloys, unwrought (excl. master alloys)	396	0.5
Cotton (other than linters), not carded or combed	1 559	1.8
Crustaceans, molluscs and aquatic invertebrates (except canned or bottled)	835	1.0
Fruit and nuts, fresh, dried or preserved and fruit preparations (incl. fruit and vegetable juices)(a)	656	0.8
Gas, natural and manufactured	1 727	2.0
Gold, non-monetary (excl. gold ores and concentrates)	6 335	7.4
Hides and skins, bovine and equine, raw(a)	230	0.3
Iron and steel	1 540	1.8
Iron ore concentrates and agglomerates (excl. roasted iron pyrites)	3 843	4.5
Lead and lead alloys, unwrought	316	0.4
Machinery specialised for particular industries	1 377	1.6
Meat of bovine animals fresh, chilled or frozen	2 930	3.4
Meat of sheep and goats fresh, chilled or frozen	657	0.8
Milk and cream and milk products other than butter or cheese	1 228	1.4
Nickel and nickel alloys, unwrought	450	0.5
Nickel oxide sinters	95	0.1
Petroleum oils and oils obtained from bituminous minerals, crude	1 597	1.9
Petroleum products	1 536	1.8
Photographic and cinematographic supplies	414	0.5
Plastics in primary and non-primary forms(a)	409	0.5
Power generating machinery and equipment	713	0.8
Rice(a)	409	0.5
Sheep and goats, live	191	0.2
Skins, sheep and lamb, with wool on, raw	131	0.2
Sorghum, unmilled	47	0.1
Titanium, molybdenum, niobium, etc ores and concentrates(a)	545	0.6
Uranium and thorium ores and concentrates	288	0.3
Wheat (incl. spelt) and meslin, unmilled	3 396	3.9
Wood, in chips or particles	590	0.7
Wool, greasy (incl. fleece washed wool)	1 454	1.7
Wool, other, not carded or combed	539	0.6
Zinc and zinc alloys, unwrought	444	0.5
Zinc ores and concentrates	686	0.8
<i>Total major commodities(a)</i>	59 697	69.4
<b>Total exports</b>	<b>86 000</b>	<b>100.0</b>

(a) Excludes commodities subject to a 'No commodity details' or 'Broad commodity details' restriction.

Source: *International Trade database, August 1999.*

**30.29 MERCHANDISE IMPORTS OF MAJOR COMMODITIES—1998–99**

Major commodities	\$m	%
Aircraft and associated equipment	2 451	2.5
Apparel and clothing accessories	2 459	2.5
Baby carriages, toys, games and sporting goods	1 096	1.1
Cars and other passenger motor vehicles (excl. public transport vehicles)	6 483	6.6
Chemical materials and products, n.e.s.	1 248	1.3
Chemicals, inorganic(a)	752	0.8
Chemicals, organic(a)	2 388	2.4
Civil engineering and contractors' plant and equipment	1 178	1.2
Clay and refractory construction materials and mineral manufactures, n.e.s.	585	0.6
Computing equipment	4 497	4.6
Electrical and non-electrical equipment, household type, n.e.s.(a)	980	1.0
Electrical apparatus for switching or protecting electrical circuits	972	1.0
Electrical machinery and apparatus, n.e.s.	1 467	1.5
Fish, crustaceans, molluscs and aquatic invertebrates, and preparations thereof	745	0.8
Glass, glassware and pottery	599	0.6
Internal combustion piston engines, and parts thereof, n.e.s.	1 087	1.1
Iron and steel	1 472	1.5
Machinery and equipment specialised for particular industries and parts thereof	936	1.0
Manufactures of base metals, n.e.s.	944	1.0
Measuring, checking, analysing and controlling instruments and apparatus, n.e.s.	1 666	1.7
Medical and pharmaceutical products	3 041	3.1
Motor vehicles for the transport of goods	2 202	2.3
Paper, paperboard and articles of paper pulp, of paper or of paperboard	2 082	2.1
Parts and accessories of motor vehicles and tractors, track-laying and wheeled	2 210	2.3
Parts and accessories for computers and office machines	2 227	2.3
Petroleum oils and oils obtained from bituminous minerals, crude	3 601	3.7
Petroleum oils and oils obtained from bituminous minerals (other than crude)	706	0.7
Photographic and cinematographic supplies	561	0.6
Plastics in primary and non-primary forms(a)	1 887	1.9
Printed matter	1 001	1.0
Pumps, centrifuges, filtering or purifying apparatus and parts thereof	1 158	1.2
Rubber tyres, interchangeable tyre treads, tyre flaps and inner tubes for wheels of all kinds	828	0.8
Ships, boats (including hovercraft) and floating structures	316	0.3
Telecommunications equipment, n.e.s. and parts and accessories, n.e.s.	3 586	3.7
Television and radio broadcast receivers	969	1.0
Textile yarn	549	0.6
Tractors, track-laying and wheeled	562	0.6
Woven fabrics of cotton or man-made textile material	727	0.7
<i>Total major commodities(a)</i>	<b>62 218</b>	<b>63.7</b>
<b>Total imports</b>	<b>97 623</b>	<b>100.0</b>

(a) Excludes commodities subject to a 'No commodity details' restriction.

Source: *International Trade database*, August 1999.



## 30.30 MERCHANDISE EXPORTS AND IMPORTS, By Commodity

Standard International Trade Classification	1996-97		1997-98		1998-99	
	Exports	Imports	Exports	Imports	Exports	Imports
	\$m	\$m	\$m	\$m	\$m	\$m
<b>Food and live animals</b>						
Live animals other than fish, crustaceans, molluscs and aquatic invertebrates	706	103	631	125	616	122
Meat and meat preparations	2 958	67	3 731	63	4 000	73
Dairy products and birds' eggs	1 759	195	1 907	219	2 225	263
Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof	1 087	604	1 177	691	1 220	745
Cereals and cereal preparations(a)	5 954	178	5 098	219	5 041	244
Vegetables and fruit(a)	1 147	588	1 133	623	1 141	715
Sugars, sugar preparations and honey(a)	1 695	85	1 341	95	150	106
Coffee, tea, cocoa, spices, and manufactures thereof	191	502	183	651	190	661
Feeding stuff for animals (excl. unmilled cereals)(a)	531	122	540	150	553	146
Miscellaneous edible products and preparations	283	542	304	626	317	685
<i>Total(a)</i>	16 311	2 985	16 045	3 460	15 453	3 760
<b>Beverages and tobacco</b>						
Beverages	715	351	994	428	1 174	453
Tobacco and tobacco manufactures	67	152	65	146	64	169
<i>Total</i>	782	502	1 059	575	1 238	622
<b>Crude materials, inedible, except fuels</b>						
Hides, skins and furskins, raw(a)	505	2	572	2	393	2
Oil seeds and oleaginous fruits	200	95	375	81	701	62
Crude rubber (incl. synthetic and reclaimed)	10	136	8	123	9	110
Cork and wood	618	430	720	479	689	477
Pulp and waste paper	13	136	19	138	26	202
Textile fibres and their wastes (not manufactured into yarn or fabric)	4 619	151	5 105	145	4 070	135
Crude fertilisers and crude minerals (excl. coal, petroleum and precious stones)(a)(b)	378	139	417	175	415	179
Metalliferous ores and metal scrap(a)	9 051	174	10 422	205	10 665	174
Crude animal and vegetable materials, n.e.s.	220	223	241	256	251	271
<i>Total(a)(b)</i>	15 615	1 487	17 878	1 605	17 219	1 611
<b>Mineral fuels, lubricants and related materials</b>						
Coal, coke and briquettes	8 005	11	9 587	24	9 302	25
Petroleum, petroleum products and related materials(b)	3 805	5 055	3 846	4 338	3 133	4 524
Gas, natural and manufactured	1 895	97	1 968	75	1 727	70
<i>Total(b)</i>	13 705	5 164	15 401	4 437	14 162	4 620
<b>Animal and vegetable oils, fats and waxes</b>						
Animal oils and fats(a)	184	8	230	7	256	8
Fixed vegetable fats and oils, crude, refined or fractionated(a)	10	235	55	229	70	261
Fats and oils (processed), waxes and inedible mixtures or preparations, of animal or vegetable origin, n.e.s.	38	23	48	22	52	27
<i>Total(a)</i>	232	266	333	258	377	296
<b>Chemical and related products, n.e.s.</b>						
Organic chemicals(b)	116	2 040	137	2 135	167	2 388
Inorganic chemicals(a)(b)	317	700	327	678	314	752
Dyeing, tanning and colouring materials	407	408	497	453	522	484
Medicinal and pharmaceutical products(a)	979	1 998	1 144	2 544	1 331	3 041
Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	296	636	291	750	299	851
Fertilisers (excl. crude)(a)	24	703	19	768	34	784
Plastics in primary forms(a)(b)	297	855	277	1 005	242	992
Plastics in non-primary forms	154	721	161	808	167	895
Chemical materials and products, n.e.s.	455	968	443	1 134	499	1 248
<i>Total(a)(b)</i>	3 045	9 028	3 298	10 276	3 575	11 434

For footnotes see end of table.

...continued

**30.30 MERCHANDISE EXPORTS AND IMPORTS, By Commodity—continued**

	1996–97		1997–98		1998–99	
	Exports	Imports	Exports	Imports	Exports	Imports
Standard International Trade Classification	\$m	\$m	\$m	\$m	\$m	\$m
<b>Manufactured goods classified chiefly by material</b>						
Leather, leather manufactures, and dressed furskins, n.e.s.	470	162	518	145	449	148
Rubber manufactures, n.e.s.(b)	150	1 115	169	1 252	176	1 272
Cork and wood manufactures (excl. furniture)(a)	103	333	113	408	124	456
Paper, paperboard, and articles of paper pulp, of paper or of paperboard(a)	394	1 769	430	1 990	428	2 082
Textile yarn, fabrics, made-up articles, n.e.s., and related products	583	2 284	615	2 521	600	2 589
Non-metallic mineral manufactures, n.e.s.(a)	716	1 244	791	1 462	734	1 579
Iron and steel	1 623	1 295	1 858	1 621	1 540	1 472
Non-ferrous metals(b)	4 434	619	5 319	802	5 399	850
Manufactures of metals, n.e.s.(b)	785	1 902	731	2 330	667	2 411
<i>Total(a)(b)</i>	<i>9 257</i>	<i>10 724</i>	<i>10 544</i>	<i>12 531</i>	<i>10 117</i>	<i>12 859</i>
<b>Machinery and transport equipment</b>						
Power generating machinery and equipment	914	1 895	986	2 040	713	2 265
Machinery specialised for particular industries	1 160	4 043	1 161	4 244	1 377	4 234
Metal working machinery	207	608	210	581	190	497
General industrial machinery and equipment, n.e.s. and machine parts, n.e.s.(a)	1 194	4 649	1 087	5 439	1 030	5 772
Office machines and automatic data processing machines	1 627	5 984	1 725	6 961	1 455	7 103
Telecommunications and sound recording and reproducing apparatus and equipment	648	3 669	1 091	3 980	740	4 927
Electrical machinery, apparatus, appliances, parts (incl. non-electrical counterparts of electrical domestic equipment)(a)(b)	1 297	4 912	1 296	5 426	1 322	5 874
Road vehicles (incl. air-cushion vehicles)	1 826	8 579	1 729	11 300	2 091	11 904
Transport equipment (excl. road vehicles)	1 811	2 443	1 826	1 936	1 405	2 848
<i>Total(a)(b)</i>	<i>10 683</i>	<i>36 782</i>	<i>11 111</i>	<i>41 908</i>	<i>10 324</i>	<i>45 425</i>
<b>Miscellaneous manufactured articles</b>						
Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.(b)	85	234	89	287	79	310
Furniture, parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings	97	532	101	678	109	797
Travel goods, handbags and similar containers	15	339	13	357	13	366
Articles of apparel and clothing accessories	356	1 841	372	2 278	351	2 459
Footwear	65	623	55	708	65	780
Professional, scientific and controlling instruments and apparatus, n.e.s.	613	1 944	802	2 295	929	2 533
Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks(b)	580	1 252	654	1 378	654	1 419
Miscellaneous manufactured articles, n.e.s.	1 017	4 585	1 106	5 478	1 246	5 802
<i>Total(b)</i>	<i>2 827</i>	<i>11 349</i>	<i>3 192</i>	<i>13 458</i>	<i>3 447</i>	<i>14 466</i>
<b>Commodities and transactions not classified elsewhere in the SITC</b>						
Special transactions and commodities not classified according to kind	517	32	571	42	1 068	39
Gold coin whether or not legal tender, and other coin being legal tender	116	9	137	9	115	6
Coin (excl. gold coin), not being legal tender	1	1	2	0	5	0
Gold, non-monetary (excl. gold ores and concentrates)	4 717	590	6 263	2 006	6 335	2 351
Combined confidential items of trade(c)	1 125	80	1 937	120	2 565	134
<i>Total(c)</i>	<i>6 476</i>	<i>712</i>	<i>8 909</i>	<i>2 177</i>	<i>10 089</i>	<i>2 531</i>
<b>Total merchandise exports and imports</b>	<b>78 932</b>	<b>78 998</b>	<b>87 769</b>	<b>90 684</b>	<b>86 000</b>	<b>97 623</b>

(a) Excludes export commodities subject to a 'No commodity details' restriction. (b) Excludes import commodities subject to a 'No commodity details' restriction. (c) Includes commodities subject to a 'No commodity details' restriction.

Source: *International Trade database, August 1999.*

## Merchandise exports and imports by industry of origin

Table 30.31 classifies merchandise trade statistics according to divisions and selected subdivisions of the *Australian and New Zealand Standard*

*Industrial Classification* (ANZSIC). The statistics are compiled by allocating international trade data for a commodity to an ANZSIC industry of origin category based upon the industry with which that commodity is primarily associated.

**30.31 MERCHANDISE EXPORTS AND IMPORTS, By Industry of Origin**

ANZSIC	1996-97		1997-98		1998-99	
	Exports	Imports	Exports	Imports	Exports	Imports
	\$m	\$m	\$m	\$m	\$m	\$m
Agriculture, forestry and fishing						
Agriculture	8 991	650	8 231	746	7 707	708
Services to agriculture; hunting and trapping	1 147	10	1 467	11	1 661	9
Forestry and logging	60	6	47	7	60	5
Commercial fishing	578	75	657	87	629	92
Total	10 776	741	10 402	851	10 056	815
Mining						
Coal mining	7 964	10	9 560	15	9 284	19
Oil and gas extraction	3 771	3 931	3 941	3 390	3 323	3 672
Metal ore mining	5 988	132	7 748	150	7 424	100
Other mining	214	137	209	164	197	173
Total	17 937	4 210	21 458	3 719	20 228	3 963
Manufacturing						
Food, beverage and tobacco manufacturing	11 030	3 394	12 204	3 833	11 679	4 231
Textile, clothing, footwear and leather manufacturing	2 832	5 289	2 999	6 039	2 531	6 354
Wood and paper product manufacturing	1 050	2 494	1 212	2 835	1 186	3 018
Printing, publishing and recorded media	411	1 594	468	1 891	488	2 137
Petroleum, coal, chemical and associated product manufacturing	5 381	12 470	5 652	13 803	5 577	14 974
Non-metallic mineral product manufacturing	378	1 018	348	1 159	302	1 297
Metal product manufacturing	14 656	4 914	16 883	7 303	17 215	7 653
Machinery and equipment manufacturing	12 046	40 421	12 758	46 102	12 170	49 984
Other manufacturing	710	2 153	781	2 781	745	2 803
Total	48 494	73 747	53 304	85 746	51 894	92 450
Other industries(a)	1 725	301	2 605	369	3 822	396
<b>Total</b>	<b>78 932</b>	<b>78 998</b>	<b>87 769</b>	<b>90 684</b>	<b>86 000</b>	<b>97 623</b>

(a) Includes commodities subject to a 'No commodity details' restriction.

Source: *International Trade database, August 1999.*

## Import Price Index

The Import Price Index measures changes in prices of imports of merchandise into Australia on a free-on-board, country of origin basis.

The current Import Price Index is a fixed weight index compiled on a reference base of 1989–90 = 100, with the weights based predominantly on Australian imports for 1988–89 and 1989–90.

Prices of individual shipments are obtained from major importers of the selected items.

Index items have been grouped according to four different classifications:

- the *Standard International Trade Classification Revision 3* (SITC Rev. 3);
- an industry of origin basis defined in terms of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC);
- the United Nations *Classification by Broad Economic Categories* (BEC); and
- the *Combined Australian Customs Tariff and Statistical Nomenclature*.

Tables 30.32 to 30.34 show index numbers in respect of the first three of these classifications, and for end use classes (capital, intermediate and consumption goods).

**30.32 IMPORT PRICE INDEX, Index Numbers Based on the SITC(a)**

SITC	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
Food and live animals chiefly for food	106.8	116.6	115.9	112.8	129.0	125.1
Beverages and tobacco	111.5	106.6	109.8	114.3	126.0	130.5
Crude materials, inedible, except fuels	116.3	121.9	125.8	110.2	119.1	119.8
Mineral fuels, lubricants and other related materials	93.5	90.1	89.8	98.1	93.4	84.9
Animal and vegetable oils, fats and waxes	120.9	140.4	170.1	158.8	156.4	178.2
Chemicals and related products n.e.s.	103.3	108.8	115.1	107.5	112.9	114.2
Manufactured goods classified chiefly by material	112.1	110.4	115.7	109.6	116.7	122.6
Machinery and transport equipment	123.1	121.1	117.4	108.5	115.5	121.9
Miscellaneous manufactured articles	117.0	113.4	114.2	111.2	120.3	127.9
Commodities and transactions n.e.c.	110.4	104.4	103.7	93.6	90.5	91.9
<b>All groups</b>	<b>115.6</b>	<b>114.8</b>	<b>115.0</b>	<b>108.6</b>	<b>115.4</b>	<b>119.9</b>

(a) Reference base year 1989–90 = 100.0.

Source: *Import Price Index, Australia* (6414.0).

**30.33 IMPORT PRICE INDEX, Industry of Origin Index Numbers Based on ANZSIC(a)**

ANZSIC Division	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
Agriculture, forestry and fishing	107.3	141.7	136.3	128.0	154.9	136.9
Mining	97.8	102.5	104.5	115.6	110.0	105.5
Manufacturing	115.5	113.8	113.5	106.8	113.5	118.1

(a) Reference base year 1989–90 = 100.0.

Source: *Import Price Index, Australia* (6414.0).

**30.34 IMPORT PRICE INDEX, Index Numbers for BEC and End Use Classes(a)**

Categories/classes	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
<b>Broad Economic Categories</b>						
Food and beverages	107.8	119.5	119.8	116.0	132.6	130.8
Industrial supplies n.e.s.	105.0	106.6	113.4	105.8	112.8	116.2
Fuels and lubricants	95.4	93.0	90.7	99.0	90.2	79.8
Capital goods and parts and accessories thereof	114.0	110.0	104.0	95.0	100.7	130.1
Transport equipment and parts and accessories thereof	135.9	136.8	135.1	126.9	135.1	144.5
Consumer goods n.e.s.	117.7	114.0	114.1	110.1	118.4	126.2
<b>End Use Classes</b>						
Capital goods	122.8	119.8	116.0	107.7	113.7	119.4
Intermediate goods	106.6	107.6	109.2	102.5	109.1	111.1
Consumption goods	121.1	119.2	119.6	115.2	123.2	129.3

(a) Reference base year 1989–90 = 100.0.

Source: *Import Price Index, Australia* (6414.0).

## Export Price Index

The Export Price Index measures changes in the prices of exports of merchandise from Australia, including re-exports (i.e. goods which are imported into Australia and exported at a later date without physical alteration).

The current Export Price Index is a fixed weight index compiled on a reference base of 1989–90 = 100.0, with the weights based predominantly on Australian exports for 1988–89.

In general, prices are obtained from major exporters of the selected commodities included in the index.

The commodities included in the current index have been combined into broad index groups in three ways:

- in terms of the *Australian Harmonised Export Commodity Classification* (AHECC);
- on an industry of origin basis defined in terms of the *Australian and New Zealand Standard Industrial Classification* (ANZSIC); and
- for selected sections of the *Standard International Trade Classification Revision 3* (SITC Rev. 3).

Tables 30.35 and 30.36 show index numbers in respect of the first two of these classifications.

**30.35 EXPORT PRICE INDEX, Index Numbers Based on AHECC(a)**

AHECC	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
Live animals, animal products	110.3	105.9	98.8	92.7	100.0	100.7
Vegetable products	88.6	82.7	101.1	98.1	96.3	90.9
Prepared foodstuffs	102.3	104.6	101.3	99.8	109.7	102.8
Mineral products	100.9	95.1	100.9	103.0	113.7	114.6
Products of chemical or allied industries	87.5	84.4	89.5	86.9	94.9	95.6
Wool and cotton fibres	59.0	80.8	72.7	67.6	75.8	61.4
Gold, diamonds and coin	110.4	104.0	102.3	92.1	89.8	93.1
Base metals and articles of base metals	76.3	96.8	97.0	86.1	94.1	85.6
Machinery and mechanical appliances	97.5	97.2	95.8	88.5	89.1	90.3
Motor vehicles, aircraft and vessels	109.3	108.2	107.3	103.6	110.0	113.0
<b>All groups</b>	<b>91.8</b>	<b>94.7</b>	<b>96.1</b>	<b>92.4</b>	<b>98.9</b>	<b>96.7</b>

(a) Reference base year 1989–90 = 100.0.

Source: *Export Price Index, Australia* (6405.0).

**30.36 EXPORT PRICE INDEX, Industry of Origin, Index Numbers Based on ANZSIC(a)**

ANZSIC Division	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99
Agriculture, forestry, fishing	72.2	83.4	85.1	80.6	84.8	73.8
Mining	101.0	94.2	100.0	101.3	112.7	114.4
Manufacturing	95.2	98.6	98.0	92.5	97.7	95.6

(a) Reference base year 1989–90 = 100.0.

Source: *Export Price Index, Australia* (6405.0).

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